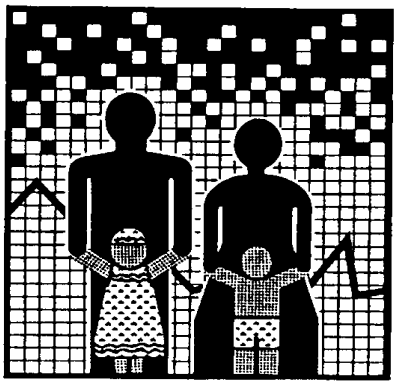
April 1999



OPERATIONS RESEARCH
TECHNICAL ASSISTANCE
AFRICA PROJECT II
THE POPULATION COUNCIL

The Navrongo Community Health and Family Planning Project: Lessons Learned 1994-1998

Navrongo Health Research Centre
Community Health and Family Planning Project
Ministry of Health
Box 114, Upper East Region
Republic of Ghana

Africa OR/TA Project II

The overall objective of the Africa OR/TA Project II is to broaden understanding of how to improve family planning services in Sub-Saharan Africa, and to apply operations research and technical assistance to improve services by:

- increasing access to a full range of family planning services and methods;
- developing service delivery strategies that are client-oriented and acceptable to various population groups;
- improving the operations of programs to make them more efficient and financially sustainable;
- improving the quality of services;
- strengthening the capabiliites of family planning program managers to use operations research to diagnose and solve service delivery problems.

The Population Council

The Population Council seeks to help improve the well-being and reproductive health of current and future generations around the world and to help achieve a humane, equitable, and sustainable balance between people and resources. The Council analyzes population issues and trends; conducts biomedical research to develop new contraceptives; works with public and private agencies to improve the quality and outreach of family planning and reproductive health services; help governments to influence demographic behavior; communicates the results of research in the population field to appropriate audiences; and helps build research capacities in developing countries. The Council, a nonprofit, nongovermental research organization established in 1952, has a multinational Board of Trustees; its New York headquarters supports a global network of regional and country offices.

Contents

List of Tables

List of Figures

List of Quotation Boxes

List of Abbreviations

CBD	Community-based Distribution
CCA	Community Clinic Attendants
CEA	Cost-effectiveness Analysis
CHC	Community Health Compounds
CHFP	Community Health and Family Planning Project
CHN	Community Health Nurses
CHO	Community Health Officers
DHMT	District Health Management Team
FFF	Family Planning, Food Supplementation, and Female Education
5YPOW	5-Year Program of Work
FIS	Financial Information System
GHS	Ghana Health Survey
GIS	Geographic Information System
GOBI	Growth Monitoring, Oral Rehydration Therapy, Breastfeeding, and Immunization
ICPD	Cairo International Conference on Population and Development
IE&C	Information, Education & Communication
MIS	Management Information System
MOH	Ministry of Health
NDSS	Navrongo Demographic Surveillance System
NHRC	Navrongo Health Research Centre
PSS	Panel Survey System
PHC	Primary Health Care
QRS	Qualitative Research System
RHMT	Regional Health Management Team
SDP	Service Delivery Point
UCI	Universal Child Immunization
VHW	Village Health Workers
YN	*Yezura Nakwa* (health committee)
YZ	*Yezura Zenna* (health aid)

Abstract

This report documents achievements of a program of health service systems planning, intervention, and trial designed to test the demographic impact of strategies for community health and family planning services in rural Ghana. A program of action and research has been developed termed the "Community Health and Family Planning Project (CHFP). The CHFP has been designed to mobilize two broad sets of underutilized primary health care program resources: i) Cultural resources that can be mobilized for health service program development and management; and ii) Rural health service delivery system resources that are underutilized by rural populations. The provision of reproductive health and family planning is particularly inadequate with the static service approaches of the Ministry of Health.

This report documents lessons learned in the mobilization of cultural resources and Ministry of Health operations for community health and family planning care. Emphasis in the report is placed on the family planning and reproductive health aspects of the project.

The overall aim of the CHFP is to develop a culturally appropriate and administratively feasible system for community-based family planning services. Chapters describe the experimental design of the study, the social setting, and constraints on reproductive change, findings from the implementation of the pilot phase of the study, and project impact on family planning use and fertility. Preliminary results indicate that the project is having an impact on reproductive motives, contraceptive behavior, and fertility. The project has undertaken extensive work on integrating reproductive health services into the regimen of rural health services in the Kassena-Nankana District of northern Ghana. A chapter describes results of this effort. The report concludes with a summary of lessons for Ministry of Health policy, possible strategies for scaling up elements of the experiment into a national community health and family planning program, and implications for international health and population policy.

Acknowledgments

The Navrongo Health Research Centre Community Health and Family Planning Project is funded by the Population Council Africa Operations Research and Technical Assistance Project (OR/TA). The OR/TA Project is a regional research contract funded by the United States Agency for International Development (Contract No. CCP-3030-C-00-3008-00). Population Council research support for the NHRC is funded by the USAID Cooperative Agreement (Contract No. CCP-A-00-94-00013-04), The Finnish Interational Development Agency (FINNIDA), and the Andrew W. Mellon Foundation. The Navrongo Demographic Surveillance System is supported by grants to the NHRC by the Rockefeller Foundation.

Executive Summary

Project Significance, Objectives, and Design

Significance

The Ministry of Health of Ghana has undertaken a field experiment in the Kassena-Nankana District of Northern Ghana. This study, conducted by the Navrongo Health Research Centre (NHRC), has a design with regional, national, and international significance:

Regional significance. Regional health management operations benefit from practical demonstrations of how new decentralized resource and program-planning policies can be implemented. "Phase I" of the Navrongo experiment involved a low-cost microprogram of community consultation, diagnosis, system change and operations development that could be replicated in any district of Ghana and used to tailor community health services to local institutional conditions, resources, and needs.

National significance. Since the 1970s, Ghana has had policies of implementing health services in village locations. Even earlier, national policies were aimed to make primary health care and family planning services available throughout Ghana. The Navrongo experiment seeks to clarify feasible means of implementing these longstanding policies and to assess the relative cost and demographic impact of contrasting approaches to achieving these aims.

International significance. Throughout Africa, there are two underutilized resources for community health and family planning services: i) Traditional social institutions that organize daily life are typically ignored by service delivery programs. The Navrongo experiment demonstrates feasible means of mobilizing traditional structures, networks, and communication systems for the provision of primary health care, reproductive health services, and family planning; ii) Formal service organizations for health and family planning are often focused on facilities and categorical programs rather than communities and the people to be served. The Navrongo experiment demonstrates feasible means of mobilizing the existing service resources of the Ministry of Health for community-based primary health care and family planning.

Objectives

The ICPD Agenda. The Cairo ICPD calls for broad-based gender-sensitive approaches to community services. Practical means of achieving this aim are unknown. The Navrongo experiment therefore directs attention to clarifying procedures for maximizing the social and health benefits of services for women and minimizing detrimental social effects of reproductive change in a traditional society. Particular attention is directed to the prevention of harmful traditional practices, such as female excision.

Hypothesis testing. The demographic significance of health and family planning programs in traditional African social settings is unknown. The NHRC has unique demographic

surveillance capabilities. Monitoring the onset, pace, and extent of mortality and fertility change can be pursued with precision. Sociodemographic surveys, accounting systems, and qualitative research systems provide comprehensive ancillary information. The Navrongo experiment permits tests of hypotheses about the impact of interventions, relative costs, and social correlates.

Design

"Mobilizing the health service system" and "Mobilizing traditional society" comprise two distinct dimensions of the project inside Kassena-Nankana District. Since the hypothesized mobilization can occur separately, jointly, or not at all, these dimensions imply a four-celled design:[1]

- **Mobilizing the Health Care System.** The Navrongo project has demonstrated mechanisms for achieving this longstanding goal by approaching communities to construct village clinics where nurses would live and provide clinical services. Community health workers were trained to function as village-based health care providers and redesignated as "Community Health Officers" (CHO). CHO were equipped with motorbikes and an initial allotment of essential drugs and trained to provide community-based health care service delivery and developing administrative support systems for village services to include health system supervision, management information systems, community liaison, communication, and logistics support.

- **Mobilizing traditional social institutions.** This involved disbanding a discredited volunteer worker scheme and developing a new and comprehensive community-managed program. In consultation with community leaders and guided by focus groups, village health committees were constituted and trained to manage volunteer workers. Supervisors were trained to guide committees in the selection of volunteers, train volunteers in recurrent training sessions, and provide community health committees with simple-to-use village-based MIS for the control of essential drugs and the monitoring of the service performance of volunteers. Close supervisory liaison procedures are designed to develop community-based accountability for volunteer service activities.

  The CHFP has proceeded in three phases:

  - **Phase I.** A micropilot was fielded to conduct community research, respond to community opinion through participatory planning, and assess community reactions to pilot operations. Villages were selected in each of the project experimental cells for this trial.
  - **Phase II.** The micropilot was scaled up to a district-wide factorial experiment. This phase is still in operation.
  - **Phase III.** A dissemination phase is planned that will extend operations to other districts and regions. Phase III is currently under development and will begin in 1999.

[1] A fifth cell, to be evaluated at the end of the project (in 2003) is a "pure comparison" area located in a neighboring district where no service delivery staff are trained.

The Setting

Kassena-Nankana district of northern Ghana is an agrarian traditional locality where mortality is high and where fertility has been unchanging prior to project interventions. Although baseline contraceptive use is only 3.9 percent, baseline total fertility is only moderately high. The baseline total fertility rate was 5.5 owing to prevalent traditional practices that reduce natural fertility: Prolonged breastfeeding, postpartum spousal separation, and low coital frequency owing to polygyny, migration, and other practices.

Marriage customs emphasize the role of bridewealth and the importance of the patrilineage. Men view women as property, purchased by the extended family, for the purpose of childbearing. These customs profoundly affect the social response to services and require careful strategic attention in the design of reproductive health care. For example, survey research suggests that couples welcome family planning services that emphasize spacing, but qualitative research shows that many men fear that the introduction of family planning and reproductive health care for women will diminish their status as heads of households.

The Kassena-Nankana settlement pattern is dispersed, with few towns, roads, or public amenities. Literacy among women is only 15 percent. Over two-thirds of the respondents in surveys identify traditional religion as their religion, although nearly all men engage in the traditional religious practice of "soothsayer" consultation.

Key Findings from Phase I

Implementing the Navrongo experiment required a "Phase I" micropilot to develop a "culturally appropriate service" system. An intensive program of focus group sessions, in-depth interviews, observational work, and village consultation was undertaken in conjunction with implementation of community recommendations. This elicited a series of insights into community needs and preferences:

Baseline observation: What people want

General advice: All individuals, groups, and leaders involved in Phase I want a strong health service program. *"First make sure that our children won't die"* is the general theme of all field encounters. Family planning and reproductive health services should be integrated into village-based primary health care. Village health care, in turn, should be reoriented and redesigned to minimize inequities in accessibility to high quality ambulatory and preventive health services. In responding to this demand for community health services, the Navrongo initiative is more general than the Cairo-ICPD emphasis on reproductive health and family planning.

Needs of women. Women seek support from a program, not merely services and technology. In discussing health services that they want for their children and reproductive health and family planning services for themselves, they also discuss a daunting array of social, familial, and spousal obstacles to addressing these personal preferences. It is appropriate to assess these obstacles and seek women's advice on program support for dealing with them.

Needs of men. In a patriarchal society, where male control of women is ingrained in male reactions to a service system, extraordinary attention should be directed to designing services for men that address the concerns of men and utilize the advice of women in achieving this goal. Programs that ignore the concerns of men will fail and may even result in social discord, ostracism, or violence against women. Men seek information from a program, participation of traditional leaders in its communication activities, and respect for their concerns about privacy.

Needs of health service workers. In the usual mode of MOH operations, workers are oriented to programs, modalities, technologies and facilities rather than to people, communities, and quality of care. There is need for a staff retraining on appropriate technology, quality of care, community entry, diplomacy, and communication. To workers, the concept of "integration" means packaging technologies; to the community, "integration" means basing workers in the community as partners in health management activities.

Reorienting MOH Resources for the CHO Initiative

The "learning-by-doing" program produced the following observations:

- **The need for doorstep health and family planning services.** The limited mobility of women and lack of autonomy to seek services requires strategies for doorstep services. This requires equipment, training, and management systems for compound-level service delivery. Doorstep services, however, does not obviate the need for more comprehensive and long-term efforts to develop women's autonomy through outreach to women's social groups, lending societies, or political organizations. *Doorstep services should be the initial step in developing a more general sustained gender-based health development initiative.*

- **For optimal family planning results more CHO are needed or more efficient outreach systems are required.** Compound-to-compound CHO services are associated with a steady but gradual uptake of contraception and dramatic increases in the overall volume of primary health care services. This suggests that demand for family planning exists, and that reproductive behavior will change if convenient services and information are offered to women and husbands in their homes.

- **The popularity of injectables.** Although pills, condoms, and foam tablets are readily available to women, a strong preference is evident for injectable contraceptives. The product available, DMPA,[2] requires a 90-day injection cycle. This means that compound visitation cycles are optimally 90 days or less. The number of CHO currently assigned to Kassena-Nankana District is inadequate for achieving this level of coverage. A fully equipped CHO visiting compounds can cover about 200 to 250 compounds in a month. Consideration should be given to increasing the density of CHO so that they can establish contact with all compounds in their area in 90-day cycles. If means can be found to increase and regularize the contact rate, acceptance rates will increase. Further attention must be addressed to testing service delivery alternatives: improved outreach to women's groups, health clubs for women

[2] DMPA is the acronym for the drug depot-medroxy progesterone acetate, often referred to by its trade name, "*Depo-Provera.*"

and their children, and other strategies that involve groups. Strategic planning is complicated by the fact that women are concerned about privacy and strongly prefer individual outreach. Nonetheless, further work is needed on women's social networks and groups so that health outreach can be focused on groups rather than individuals.

- **Major increases in health service volume arise from household visits.** Compound-to-compound coverage improves women's access to primary health care, increases childhood immunization coverage, and addresses inequities in health service coverage.

- **Fragile demand for services.** Discontinuation of childhood immunization regimens or of family planning use is pronounced if outreach services are even briefly disrupted. Just as contact with CHO lends support to women and fosters utilization of program services, disruption in active outreach solicitation leads to rapid discontinuation. Very careful attention must be directed to sustaining the pace, regularity, and quality of outreach activity once a program is launched.

- **The CHO as a trusted outsider.** There are marked differentials in the efficacy of health and family planning activities reported by villages. Community members value the respect that CHO extend to their chiefs and elders; they consign considerable importance to close liaison between the CHO and the community; but they also value an element of social distance between service providers and the community. If workers live in the chief's compound or are too closely linked to the social system, women fear that confidential service information will be shared with others and become a source of gossip, embarrassment, and ostracism.

- **Male roles.** An unanticipated finding from the micropilot is the willingness of men to discuss reproductive health and family planning with CHO, who are women. Women can serve quite effectively as health information providers to men, so long as strict secrecy about the contraceptive decisions of wives is maintained at all times. There is nonetheless a need for a general strategy for reaching men through their social groups and traditional communication mechanisms. Introducing services should address male concerns, involve male leadership systems, and reach men with information and services through their traditional social groups. A purely woman-to-woman approach will probably fail in this setting.

- **A sustainable construction initiative.** Communities construct traditional dwelling units for CHO to use as their residence. These are termed "community health compounds" (CHC). *This has been a low-cost program that could be implemented elsewhere*. Modest external inputs are needed to reduce maintenance and insure minimal standards of construction quality. CHC should be separate stand-alone dwelling areas in order to ensure patient privacy.

- **Clinical service quality.** The quality of care available at clinics in the baseline appraisal was unacceptably poor. Efforts to develop village-based services should be accompanied by a rigorous review of clinical service quality and upgrading clinical capacity.

- **System support**. Village work is a new challenge for CHO that requires mechanisms for technical, community, and supervisory support for their work. Frequent practical training

sessions are needed to develop community liaison and teamwork. A new MIS system has been developed to foster "bottom-up" communication. Workers meet frequently, assemble narrative reports, discuss progress and problems, and communicate matters of concern to senior officers.

- **The focus on primary health care.** Since mortality is high and health services are limited, critically needed preventive health care should be taken to every doorstep. Once this is achieved, family planning and reproductive health will be widely accepted, even among men.

Mobilizing Traditional Social Institutions for Primary Health Care: The *Zurugelu* Approach

- **Community participation.** Mechanisms for traditional governance and group action can be utilized for communicating with communities. Liaison with chiefs, elders, and lineage heads, and cooperation with village peer networks and group leaders can legitimize and explain family planning to men. *Durbars* are particularly useful for health education and family planning. Chiefs, elders, and community leaders welcome dialogue with MOH staff and seek regular exchanges. A regular program of community dialogue and exchange should be part of every DHMT work program.

- **The YZ initiative.** The Navrongo project has demonstrated that volunteerism can be an important resource to the MOH. A new and effective volunteer cadre has been developed termed YZ for *Yezura Zenna* (Health Representative).

- **The role of MOH supervision in community-managed programs.** Considerable effort must be directed to volunteer training, supervision, and community organization, to include training for community health committees and careful operational planning. Two streams of supervision are needed—one from a community health committee, termed *Yezura Nakwa (YZ),* assuring that work is actually done and that accountability is sustained, and one from the MOH Sub-District team, insuring that the appropriate types of health and family planning services are provided and that technical competence of the YZ is maintained at a high level. Careful attention to logistics is required. Bicycles are provided to YZ providing essential mobility. Regular supervisory visits to community health committees are required to replenish supplies.

- **The catalytic role of external resources.** Explicit attention must be directed to securing sufficient compensation for YZ. No worker can be productive without some form of transportation.

- **Training requirements.** Volunteer training is essential and must be continuous. Where both CHO and YZ are functioning, a working partnership has developed concerning male roles in family planning, promotional activities directed to male networks, and other issues concerning village diplomacy that men are positioned in society to address. CHO have thus learned to view their relationship with YZ as complementary.

Scaling Up

Lessons Learned from Scaling Up the Navrongo Experiment Inside the Study District

When services are replicated in other districts, strategic attention should be addressed to the following problems and difficulties that arose when the pilot was scaled up:

- **DHMT supervisory staff are neither oriented to community health services nor equipped to provide supervisory support to village-based workers.** Regional roles, district health management tasks and other obligations prevent DHMT staff from conducting routine field visits that the program requires. Fuel and equipment problems prevent DHMT supervisors from attending to a regular village visitation cycle. *Therefore supervisory support for community health services should be developed through the Subdistrict Head. Motorbikes should be provided to Subdistrict Heads for supervisory work.*

- **When CHO are assigned to village locations, they are removed from their residence, separated from families, and isolated from amenities that they have become accustomed to.** A review of MOH personnel policies should be undertaken to identify conditions that make village resident work more appealing.

- **Communities will donate labor for CHC construction, promote health services in durbars, and welcome family planning activities.** However, seeking cash outlays for cement, iron sheets, and other construction supplies delays CHC construction and impedes program implementation. *A modest community mobilization fund is needed to catalyze the CHC initiative.*

A Proposed System for Scaling Up Navrongo Results in the Northern Regions

The Navrongo scaling up experience could be a useful framework for fostering evidence-based strategic planning and decentralization in northern Ghana. The Navrongo pilot approach should be used for "participatory planning" in three districts of the three northern regions in 1999 and rapidly expanded to other districts of the northern regions subsequently.

Community Reactions

General reactions to the CHFP were noted in focus group investigations:

- **All age groups of women and men were supportive of CHO outreach and *Zurugelu* programs.** Although direct opposition from men never arose, men express concerns in the form of anxiety about the "liberating effect" of providing direct health and family planning services to women. Women worry about ostracism and even violence if family planning practice becomes known in the extended family or community.

- **Respondents appreciate CHO health service outreach.** CHO are viewed as people who care about the community, providing ambulatory health services that are very much in demand.

- **The Navrongo system has restored credibility to community volunteer workers.** Focus group respondents characterize YZ as volunteers who cure sick people. This is a marked improvement over baseline appraisals that characterized volunteers as drug peddlers who gave injections for a fee.

Preliminary Impact

- **Fertility impact.** The most important finding to emerge from this investigation is the consistent evidence that the CHFP has had an impact on health service utilization and has begun to have an impact on reproductive behavior and fertility. If current treatment differentials are sustained and amplified, project substantive hypotheses will be supported.

- **Fertility has declined equally in all treatment areas.** The total fertility rate declined by about one-half of one birth in the first project impact year. In the comparison area, fertility remained unchanged. Fertility decline affects all age groups, in contrast to patterns of decline observed in Asia, Latin America, and the Middle East where initial fertility changes are concentrated in the later ages of childbearing. The observed fertility change is modest, however, and firm conclusions cannot yet be drawn.

- **Long-term observation is required.** Early results indicate that long-term observation, interdisciplinary investigation, and methodological research is needed. Overly simplistic investigation based on single-round survey data alone may lead to spurious conclusions and inappropriate policy advice since survey responses may reflect secrecy and denial rather than project impact. Navrongo research combines the use of qualitative data, MIS data, survey research, and demographic surveillance into a system of investigation on basic social research methodological assumptions. Findings suggest that fertility has begun to decline in ways that are inconsistent with contraceptive use differentials, and suggest a need for further work on the determinants of contraceptive use denial and secrecy.

- **Contraceptive use levels are not accurately portrayed by survey data.** Analyses of survey data show that Cell 3 contributes about 3 percentage points annually to the prevalence rate, Cell 2 about 2 points, and Cell 1 about 1 point, in addition to the trend in the comparison area. These estimates are adjusted for treatment differences in educational attainment, motives, and other characteristics of women that could contaminate observation. These findings may underestimate true impact, however. Research shows that both women and men who use contraception deny use in surveys. About a fifth of all women who are known contraceptive users and 70 percent of their husbands deny use when interviewed in panel surveys.

- **The CHFP challenges conventional wisdom about the role of CBD.** Community-based distribution (CBD) is often discussed as a policy to promote accessible services, as if

accessibility alone is crucial to the effective strategic design of programs. CHFP results bring this perspective into question—contraceptive use increases most where volunteers are working, even though volunteers do not distribute the methods most commonly adopted and used.

Cost and Efficiency

Observation of the project is too early for definitive conclusions to be drawn about the relative efficiency of cells. However, project impact has been observed in the first full year of operational impact (1997), and corresponding cost data provide an indication of relative cost and cost effectiveness:

- **Cost.** From the standpoint of cost per capita, Cell IV is the least costly operation. The Republic of Ghana invests about $8.50 in health per capita per year. Adding the Zurugelu system costs an additional $0.27 (Cell 1); adding CHO as in Cell 2 costs $1.05; and adding a combination of both (Cell 3) costs $0.84. Thus the combination of activities has been less expensive than the sum of cell-wise components. The cost of various operational components of the project have been examined:

  - Building a community health compound ($711).
  - Assigning a CHO to a village for a year ($1,233 usual base salary + $267 additional project costs).
  - Providing a CHO with a motorbike and other equipment for a year (Cell 2: $698; Cell 3: $761).
  - Annual cost of durbars, village dramas, and social mobilization (Cell 1: $1060; Cell 3: $2062).

- **Cost effectiveness.** The cost effectiveness of various cells are the ratio of costs in the cell to measures of output. Project cost per capita are lowest in Cell 3 and the comparison area ($1.26 and $1.24, respectively) and relatively high in Cells 1 and 2 ($2.67 and $3.22). The cost of clinical episodes treated is equal, irrespective of treatment (about $2.50). The marginal cost of adding a family planning acceptor is $5.46 in Cell 3. Taken together, these findings suggest that Cell 3 is the most efficient cell of the CHFP.

Reproductive Health

The CHFP is designed to accommodate sociodemographic and operations research studies within the framework of the experiment. In the first phase of the project, operations research has focused on the need for reproductive health integration into the community health regimen. Three operations research projects were launched:

Expanding STD Referral Skills and Community Awareness

Village volunteers were trained to provide community education about STDs and HIV. An evaluation study showed that this initiative had no apparent impact on reproductive health knowledge in study areas.

NORPLANT® Introduction

Six main findings stand out from experience with NORPLANT® introduction:

- Acceptance and use effectiveness of NORPLANT® is high even though NORPLANT® has not been publicized in the District. This method is sought by women because it is known to be long acting, safe, and low cost.
- Information about NORPLANT® is provided almost entirely by two sources: personal exchanges with MOH staff and social interaction with friends and relatives.
- Satisfaction from the use of NORPLANT® is nearly universal, geographic clustering is prominent, indicating a need to develop more service sites.
- Demand for NORPLANT® sometimes outstrips service capacity, indicating the need for a paramedic insertion program. Service demand has also outstripped the supply system, limiting the capacity of the project to meet client needs.
- Despite training on the importance of educating clients about the five-year removal requirement, knowledge of removal dates is not universal, suggesting a need for more vigorous staff training efforts, intensification of client follow up, and more detailed counseling on removal dates.
- Introduction of NORPLANT® in the Kassena-Nankana district has expanded contraceptive choice and uptake is growing rapidly. Because of the existence of the NDSS, the ability to track women using NORPLANT® exists in the district. Further research is required on the operational requirements of tracking and follow up in other districts of Ghana.

Lessons from FGM research

Studies on female genital mutilation (FGM) aimed to clarify mechanisms of social support for this harmful traditional practice among the Kassena-Nankana. Several observations emerged from this research:

- **FGM prevalence is high.** Although FGM practice may be declining, overall prevalence remains high at 78 percent.

- **Education is an important correlate of FGM practice.** Educated girls are much less likely to have been excised; parents who value education typically do not excise their daughters.

- **Pervasive social support for FGM persists.** Several sociocultural factors were found to be the basis for community legitimization of the practice. These include gender identity, daughter's role during parents' funeral rites, social derision among women, control of female sexuality and reproduction, and a host of erroneous beliefs about positive aspects of FGM.

The systemic nature of social support for FGM indicates that effective social action requires a comprehensive and sustained program of social intervention that is more general than IE&C on this issue. A sustained system of outreach will be required to foster ideational change among traditional leaders, parents, providers, and young women.

Policy Implications

Early results on the Navrongo experiment are consistent with project hypotheses. Policy planners should begin to anticipate the opportunity to utilize the experiment to guide regional and national program development:

First, the project demonstrate practical procedures for evidence-based planning at the district level. This could contribute to recent national plans to decentralize the MOH program, enhance district control of resources, and foster diversification of operational designs and service delivery strategies.

Second, the project demonstrates feasible procedures for scaling up operations at the regional level. Lessons learned from scaling up Phase I to Phase II operations are likely to be relevant to other northern regions of Ghana.

Finally, the project shows that social, economic, and cultural constraints o the introduction of services are not necessarily fatal to the success of program activities at the national level. By linking activities to the communities served, programs can foster ideational change and health development.

Chapter 1

Study Design

Introduction

High fertility represents a critical policy issue throughout sub-Saharan Africa. Powerful social institutions structure high fertility throughout the region, raising doubts that family planning programs can have an impact in rural traditional African settings. Other social institutions sustain cultural practices that are harmful to health; economic, ecological, and social conditions constrain the development of effective primary health care. A study launched by the Navrongo Health Research Centre (NHRC) in northern Ghana is examining the question of how traditional social institutions can be utilized in the design of a package of services that improves access to primary health care and family planning and enhances the cultural compatibility of services. In Navrongo, a partnership has been developed between health professionals and traditional village groups for designing culturally sensitive approaches to family planning services. This controlled experiment, known as the Navrongo Community Health and Family Planning Project (CHFP) has been launched in Kassena-Nankana District of the Upper East Region. This report presents an overview of the activities of the CHFP and preliminary findings on the impact of this project.

The Navrongo Health Research Centre

The NHRC maintains a community health laboratory in Kassena-Nankana District of the Upper East Region of northern Ghana. The NHRC is a research station of the Ministry of Health (MOH) that has been constituted to develop and test primary health care strategies. It is located in a rural and remote district of the Upper East Region near the Burkina Faso border. Originally developed as a site for a trial of vitamin A supplementation, the NHRC has since become a broad-based health research institution where protocols have been fielded to research means of preventing malaria, micronutrient adversity, filariasis, and schistosomiasis. The core research resource of the NHRC is a district-wide Navrongo Demographic Surveillance System (NDSS) that records all vital events and insures that the demographic impact of health services can be the subject of systematic trial.[1] The population monitored by the NHRC research system receives

virtually all of its allopathic health and family planning services from primary health care programs of the MOH. In Navrongo, the Ministry has taken the unusual step of establishing a close collaboration between the District Health Management Team (DHMT) that directs this program and the research team of the NHRC. This collaborative arrangement permits flexibility in designing field operations so that varying work routines, staffing patterns, or the intensity of services can be tailored to the requirements of research protocols. Collaboration between service providers and researchers makes the Navrongo project uniquely suited for a study of the demographic role of family planning.

The partnership represented by the NHRC-MOH institutional arrangement leads to counterpart structures that are well suited to research on organizational change and development. Testing the impact of alternative operational models implicitly involves changing roles, structures, and functions in a public bureaucracy. No formal authority is provided to the NHRC for instituting change, but it works closely with national, regional, and district authorities to develop a common agenda for implementing protocols with operational implications.

Figure 1.1 diagrams the working arrangements of the CHFP. First, the CHFP is a multi-year protocol of the NHRC that reports to the NHRC Director who reports to the Health Research Unit in Accra. The DHMT is an MOH structure that exists throughout Ghana with district, regional, and national lines of authority. The CHFP works by having formal MOH approval of its scientific protocol, signed by the Director of Medical Services, and close lines of cooperation at various organizational levels. As Figure 1.1 illustrates, the NHRC

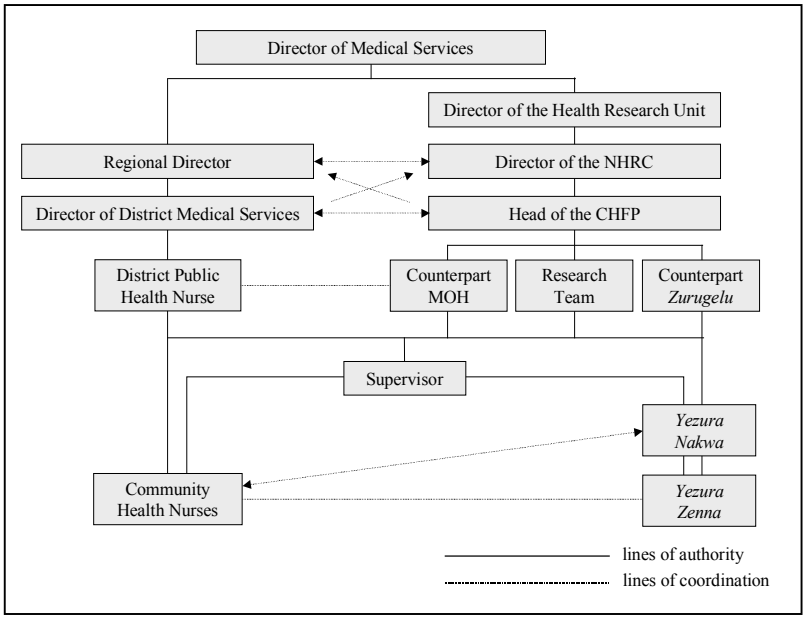


Figure 1.1 Structure of the District Health Management Team-Navrongo Health Research Centre collaboration for the CHFP

conducts research and counterpart support. However, all service delivery is provided by MOH nurses.

The Navrongo project was launched in response to an MOH research initiative involving a series of studies on the appropriate design of community-based family planning programs. In 1993, the MOH conducted a focus-group investigation of community explanations for the failure of family planning outreach schemes. This study indicated that the national program for community-based family planning was not working and that major strategic reforms were needed (See Health Research Unit 1991a, 1991b, 1991c, 1992). To focus-group session participants, the staffing pattern and communication themes for community-based family planning were culturally inappropriate. Moreover, the service regimen omitted key health care elements. Respondents appealed for a more broad-based domiciliary health service approach. The demand for health care could be addressed in ways that also foster demand for family planning.[2]

Study Aims of the CHFP

The CHFP is addressed to the observation that little is known about how to organize community health or family planning services in a manner that will work in northern Ghana. Large-scale government programs have failed to extend services to rural populations. Various pilot projects have proposed interesting strategies, such as the UNICEF sponsored "GOBI" and "Bamako" initiatives, but pilot schemes are typically not guided by research, and to date all such initiatives have failed to have an impact on health behavior.[3]

The key operational problem that was identified at the start of the project concerns the static nature of primary health care services. Prior to the CHFP, community health efforts in Kassena-Nankana District were oriented to technologies, facilities, and categorical programs. Workers were trained for a purpose and assigned to a facility. The CHFP has reoriented health care at the periphery so that the basic care providers of the MOH system more effectively collaborate with traditional leaders on setting priorities and managing services. The central operational aim of the CHFP has been to develop a simple and replicable scheme for achieving this reorientation. The overall objective of the project has been to test its impact on fertility and mortality. Since the project is an ongoing trial at the time of this report, our presentation of impact focuses on proximate determinants of project impact: experimental treatment differentials

in family planning use, health utilization behavior, and preliminary evidence of demographic impact.

The Need for Effective Primary Health Care

The CHFP was launched in response to Ghanaian health care research consistently showing that primary health care services are poorly utilized. There is a need to implement services that generate credible health care at the periphery that communities will utilize. Major international campaigns, movements, and initiatives have been launched in Ghana that were designed to improve health services for mothers and children. None, as yet, has worked however. Experience suggests that serious consultation is needed with communities, leading to improved design of operations, and demonstration that culturally sensitive operational designs can have an impact on fertility and child survival.

There is a need to address questions about health priorities in Ghana in a manner that also examines international questions and issues. Much is known about improvements in health status and survival that accompany economic development and social change; less is known about how to induce and sustain the health transition in the absence of economic development and social change. The question of what can be done to induce and sustain the health transition in Ghana has been debated for at least three decades. Box 1.1 contains an insightful analysis of the situation in Ghana.

Box 1.1

...the reduction of illness has to await the reduction of poverty and underdevelopment in the Third World today. These grounds are that poverty and underdevelopment inevitably affect the working of the health services as they affect every other aspect of society, preventing them from being effective. Low budgetary resources limit the amount that can be spent on health services and more important, underdevelopment implies all the inefficiencies which lead to poor use of the resources available. Some would point particularly to the tendency at all levels for the resources to be misallocated, favouring the better off. Even so, all that may still lead to one of two conclusions: either that action can and should be undertaken...; or that nothing of consequence can be achieved until more decisive changes take place in the overall organization of the society and economy.

DeKadt and Segall, 1981, p. 404

The CHFP was designed to determine whether the health transition can be induced and sustained in a traditional African setting using realistic service interventions and resources. Whether the health transition can occur in the absence of concomitant social and economic change represents a key issue for health policy.

The need for effective reproductive health and family planning strategies. In the past three decades, a reproductive change in Europe, North and South America, and Asia has

produced unprecedented declines in fertility around the world. The exception to this trend has been sub-Saharan Africa where fertility remains high. Explanations for the persistence of high fertility focus on pronatalist influences of social, cultural, religious, and economic institutions that have developed over millennia in response to agricultural, ecological, and other conditions in the region. Ghana is a widely cited example of a failed family planning program. Although policies and programs have existed since 1968, little of consequence has been achieved. Some commentators attribute the causes of this failure to flawed implementation and weak political commitment, while others emphasize the weak climate of demand for services. All parties agree, however, that results of the program have been less than its proponents had anticipated.

In weighing strategic options for improving family planning programs, some commentators recommend making services conveniently available in village locations—community-based distribution or CBD. Some analysts argue for strategies that extend beyond community distribution, however, by addressing community concerns about how services are organized and the configuration of services rendered. For example, Caldwell and Caldwell appeal for broad-based health programs that offer a variety of services that families need and demand (Box 1.2). But if this prescription for an appropriate program is correct, few, if any, of the family planning programs in the region are appropriately designed. Family planning and health are typically disjointed initiatives that establish little coherence between primary health care and family planning services. Indeed, proponents of family planning often deliberately avoid establishing links to health services on the grounds that primary health care is so poorly organized and weakly implemented that health links would hinder, rather than support, the introduction of family planning.

Box 1.2

...[c]omprehensive family planning could easily be grafted onto such an overall effort. This task is the greatest challenge for international aid in modern times, and posterity will not forgive our generation if we do not meet it.

Caldwell and Caldwell, 1990, p. 125

The Caldwells' challenge has provided a key rationale for the CHFP. We aimed to demonstrate the feasibility and effectiveness of establishing broad-based primary health care in a traditional African society and to test the hypothesis that family planning can succeed in such a program, despite profoundly unfavorable societal circumstances for reproductive change.

The need for indigenous service models. Various attempts have been made to provide family planning services in Ghana through clinics or through the distribution of contraceptives—strategies that have been borrowed from other countries. As yet, neither strategy has worked particularly well. There is a need for strategies that build upon existing community organization and structure.[4]

In Navrongo, a program of trial, observation, and dialogue was launched in three pilot villages to develop a strategy for managing community health care in consultation with the communities served.[5] Particular attention has been directed to the task of implementing recent MOH guidelines calling for decentralization of the Primary Health Care (PHC) program to districts, decentralization of operational support to subdistricts, and full community participation in PHC activities at the village level. Although policy pronouncements call for revitalizing the link between traditional communities and Ministry staff, practical experience on how to achieve this is very much needed.[6] For over twenty years, the MOH has had policies aimed at developing primary health care in village locations (Box 1.3).

Box 1.3

Because most disease problems that cause the high rates of illness and deaths among Ghanaians are preventable or curable if diagnosed promptly by simple basic and primary health care procedures, the major objectives are to extend health services to the most people possible during the next ten years.

National Health Planning Unit 1977, p. 1

The frontline workers for this initiative were Community Health Nurses, known as CHN who were charged with the task of reorienting the system of care to villages, with community-sponsored clinical and volunteer outreach services comprising "Level A." The 1977 Health Policy for Ghana planning statement appears in Box 1.4.

Box 1.4

In order to provide this extent of coverage, it will be necessary to engage the cooperation and authorization of the people themselves at the community level. It will involve virtual curtailment of the sophisticated hospital construction and renovation and will require a reorientation and redeployment of at least some of the health personnel from hospital based activities to community oriented activities.

For various reasons, this reorientation has never occurred. CHN have been assigned to "Level B" subdistrict clinics where they reside and work. Fuel shortages, supervisory lapses, and planning problems have converted the CHN cadre from a village-based worker into *de facto* clinic assistants who perform menial support tasks for paramedical workers. To address this issue, recent policy changes have recognized the need to decentralize authority for PHC to the

district level and channel resources for implementing PHC to the subdistrict. The DHMT is central to PHC, providing technical support to subdistrict and community health services. Current plans call for strengthening the role of the subdistrict as an "operational support unit" with direct responsibility for implementing village-level care. Primary responsibility for decentralizing care is vested in the DHMT, as the responsible unit for coordinating the interface of health services provided by the District Health Administration with the local Government office, various district-level social, agricultural, and human service agencies. The foundation of the PHC scheme rests on the communities that it serves. Thus, communities are not just recipients of health care, but full participants in planning, implementing, and monitoring PHC. A difficult issue, however, concerns the practicality of community-based planning. While policymakers recognize its importance, actual practical experience with community-based planning and management is limited and poorly documented.

The CHFP is addressed to the observation that the community foundation for PHC is not yet developed in Ghana's northern regions. Volunteer Health Workers (VHW) exist in name only, village health committees are not constituted, critical health services delegated to communities, such as the "Bamako Initiative" do not work or do not exist. The role of the DHMT in linking technology, intersectoral action, and community participation, does not occur. The activities of District Assemblies are not effectively linked to PHC. The powerful institutions of chieftaincy, lineage, and community are not utilized by DHMT in daily work routines.

Hypothesis and Design

The Navrongo experiment tested the hypothesis that family planning service delivery can induce and sustain reproductive change in a rural traditional African population. Investigating this hypothesis involves more than research on discrete outcomes, however. The Navrongo research system provides a basis for understanding the process of reproductive change. Since intermediate factors stand between the activities of a program and fertility outcomes, clarifying the role of the program involves monitoring these factors and establishing their relative role. For this reason, the project is examining proximate determinants of fertility, reproductive motives, knowledge of contraception, and exogenous social and economic determinants. This perspective is represented in a detailed framework in Figure 1.2 (Binka et al. 1995a).

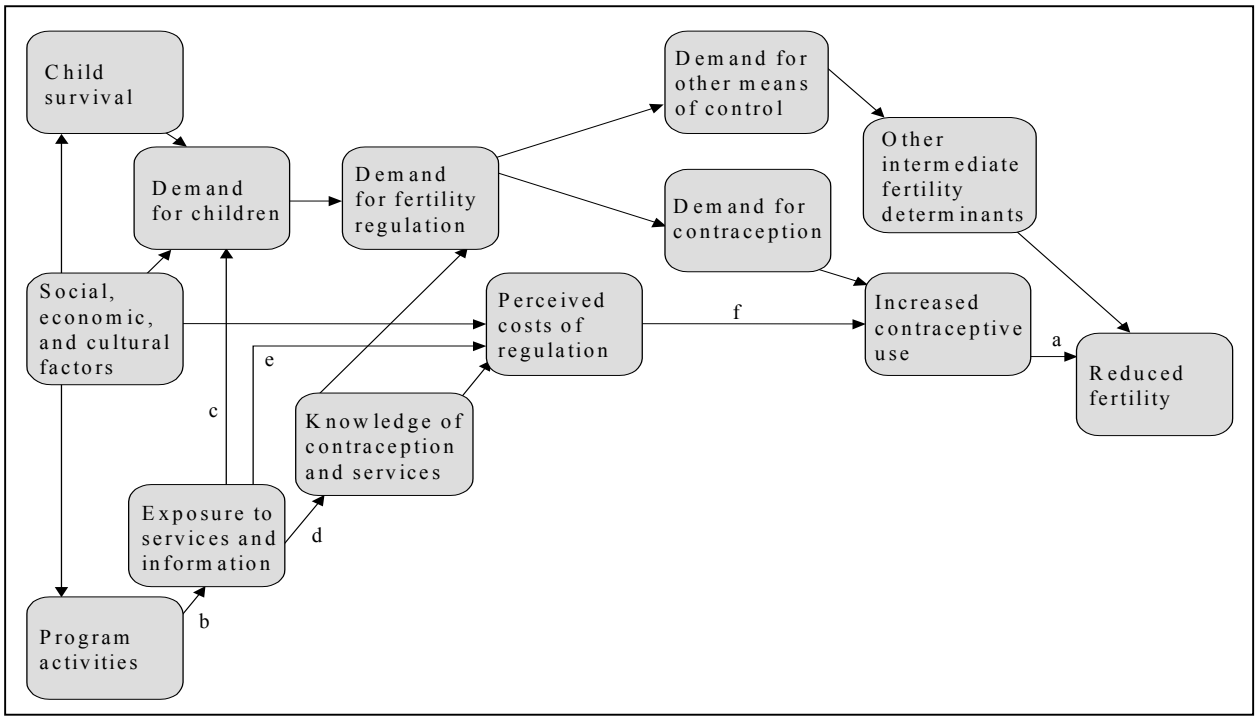


Figure 1.2 Analytical framework of the Navrongo Community Health and Family Planning Project, Kassena-Nankana District, Upper East Region, Ghana

As the figure shows, the ultimate aim of the project is to test hypotheses about fertility reduction. Since fertility is caused by factors other than contraception, other intermediate variables must be monitored even though contraception is the only point of intervention (Pathway a). Program activities have an impact through three general channels, all of which require exposure to information or services or diffusion of new ideas fostered by program activities (b). Exposure, in turn, can lead to ideational change about childbearing (c), to new knowledge about fertility regulation (d), or to new views on the costs of regulation (e). Cost are monetary or accessibility constraints on contraceptive use, as well as perceived psychological costs, social constraints, health concerns or other barriers to implementing preferences (f). Thus, the causal system for the possible impact of the CHFP is likely to be complex, but the most important components of this role are likely to involve costs (f) and exogenous determinants.

For the purposes of monitoring preliminary impact, contraceptive use is the primary dependent variable for the analysis. Fertility is the ultimate outcome of interest, but if the project fails to impact on contraception, the impact of the experiment will be nil. "Cells" of the experiment are the principal independent variable of interest, although more proximate indicators

of program activity can be used, such as exposure to program services or outreach. Finally, controls must be introduced for various exogenous factors that can contaminate effects.

Cells of the experiment. The experiment has been a five-celled trial, evaluated with baseline and follow-up surveys, a management information system (MIS), and longitudinal demographic surveillance. Treatment areas in Kassena-Nankana District were comprised of four cells, of which three involved instituting a basic primary health care and family planning program. The four cells were randomly assigned.[7] The fifth cell was selected opportunistically.

The configuration of treatments conforms to the observation that two general dimensions of resources exist in Africa that are rarely utilized for programs. Throughout the African region, health ministries have staff, facilities, equipment, and capabilities that sit idle in clinics. There is a need to mobilize these resources for primary health care and family planning. Throughout the region, there are cultural resources that govern daily life. There is a need to mobilize the resources for planning, organizing, and managing primary health care. These untapped resources imply two broad dimensions of the experiment that can be mobilized independently, jointly, or not at all, as follows:

The bureaucratic dimension. In Kassena-Nankana District, 10 to 15 workers sit idle in each subdistrict "Level B" health center, serving an average of 10 patients each day and even fewer family planning clients. In the experiment, 16 CHN were removed from these clinics, posted to village locations, and provided with motorbikes for village outreach work. A new primary health care program was developed to reorient and backstop this village service system that includes improved mobility for supervisors, MIS, and intensified community liaison. Housing for nurses was not available, but communities were involved in the process of constructing traditional dwelling units known as "Community Health Compounds" or CHC. Upon completion of a community constructed CHC, a village was equipped with a nurse who provides ambulatory care in the CHC and outreach services on regular compound visitation rounds.

The CHFP design is thus based on the premise that existing idle resources of the MOH bureaucracy can be mobilized in ways that improve the accessibility, quality, and range of community health services. The *bureaucratic dimension* of the experiment refers to this program of reorienting existing static clinical services to staff and resources to community-based health care. [8]

The Zurugelu dimension. The second dimension of the experimental typology concerns the role of social organization and ways in which volunteerism is traditionally managed in Kassena-Nankana communities. In many African societies traditional systems of village leadership, social networking, and social organization are marshaled to foster volunteerism for self-help, agriculture, or health activities. Although public bureaucracies have been organized to provide social services, human service bureaucracies in rural Africa typically fail to reach the periphery. Instead, daily lives of rural people are governed by traditional institutions that have been in place for generations. Social programs sometimes establish links with traditional leadership systems, but practical demonstrations of how to achieve this are rare. Political movements often attempt to mobilize votes with such traditions, mindful of the power of traditional leaders in marshalling collective opinion. But, for the most part, health and human service agencies in Africa are bureaucratic in their conceptualization and design.

Our efforts to incorporate community institutions in the operational design of the program constitutes the *zurugelu* dimension of the experiment.[9] By assembling health action committees through existing councils of elders, directing work by mobilizing traditional peer networks, and implementing services with extant village self-help schemes, we aimed to integrate the organization of family planning care into the existing social organizational setup.

It is quite possible that the bureaucratic and *zurugelu* dimensions of the design are complimentary, combining the relative advantages of professionalism in the bureaucratic model, with the implicit accountability and sustainability of the *zurugelu* approach. The bureaucratic and community organizing dimensions thus define three contrasting models for organizing health services at the periphery. This is shown in Figure 1.3 by the three possible treatment organizing dimensions in the experiment and a fourth representing a comparison area. For ethical reasons, training and clinical systems development could not be withheld from Cell IV. Thus, implementation involved upgrading all clinical service delivery points in the district so that supplies and equipment were adequate for delivering a full range of family planning services and clinical personnel were trained as necessary. In the experimental areas, however, treatments were defined by alternative organizing strategies: mobilizing existing MOH resources at the periphery, versus organizing existing community resources at the periphery, or a combination of both:

Bureaucratic dimension:	The *Zurugelu* dimension:	
	Village traditional organizations will be...	
MOH services are Offered through...	... Involved through liaison only	... Providing services and supervising operations
...Fixed service points only	Clinic only (Usual MOH services) IV	Clinic operations + village management of health committees, networks, and volunteers I
...CHN outreach and community-based clinics	Doorstep CHN services II	Clinic operations + village management of health committees, networks, and volunteers + Doorstep CHN services III
Note: Cell V (not shown) is a comparison area with no interventions, located in a contiguous district.		

Figure 1.3 Cells in the experimental design

- **Cell I (Treatment area I).** In Cell I, clinical services and staff were upgraded, but CHN retained their clinic affiliation and roles. Village leaders were oriented to the program, village peer leaders were recruited and trained, and volunteers provided services. Supervisors were trained in community organizational work.

- **Cell II.** Clinical services and staff were upgraded as in Cell I, but the community cadre was not developed. Cell II addressed concerns in the MOH that existing CHN are currently not utilized efficiently in subdistrict clinics; in this cell CHN were relocated from the clinics and stationed full-time in the communities. This change in the residence of the CHN required community liaison, but the scheme was MOH managed and implemented.

- **Cell III.** Clinical services and staff were upgraded as in the other treatment cells. In addition, the strategy in Cell III combined those of Cells I and II by having CHN resident in communities where intensive efforts were also directed to organizing traditional leadership of the program. If the program of CHN outreach and volunteerism can be simultaneously mobilized, Cell III is the most intense experimental area.

- **Cell IV (Comparison area 1).** Clinical services and technical skills of CHN were upgraded, but there were no CHN activities outside the "Level B" clinic; CHN continued their regular outreach services.

- **Cell V (Comparison area 2)**. Since all clinical services throughout Kassena-Nankana District were upgraded, a "pure control" Cell V has been located outside this district where the MOH's usual PHC/Family planning strategy continued. Baseline and end-of-study

surveys in Cell V will collect data for comparative purposes, but demographic surveillance was not introduced. At the end of the CHFP, fertility levels in Cell IV and Cell V will be compared.

Testing hypotheses. Comparison of contraceptive use trends and fertility across cells of Figure 1.3 answer questions about the appropriate configuration of community services in constrained environments. Formal hypothesis testing will utilize both treatment-comparison area differentials and regression models of time series data. At the end of the study, contraceptive use prevalence and fertility rates will be compared by treatment. Interim tests for contraceptive use will be presented in Chapter 6.

Data Resources

Data collection systems have been developed that permit special studies of the nature of reproductive change, relationships within households, dynamics over time, and areal indicators of whether change diffuses through society. In the past, research on demographic transitions has depended on creative manipulation of archival data, analytical detective work, and historical research. In designing the Navrongo system, we have attempted to put in place prospective research tools that place demographic change and its determinants under a sociodemographic research microscope. This involves developing six types of data resources:

The Navrongo Demographic Surveillance System (NDSS). The core research resource of the NHRC is the district-wide NDSS that records all vital events and insures that the demographic impact of health services can be the subject of systematic trial**.** The NDSS also defines household relationships, permitting the systematic storage and retrieval of information about individuals, compounds, or treatments over time for any special study in Kassena-Nankana District. The NDSS represents the relational structure for all other data sets collected by the NHRC.

The Panel Survey System (PSS). Beginning in October 1993, a sample of about 1860 compounds had been designated where all resident women ages 15 to 49 were interviewed in annual surveys about reproductive beliefs, motives, and preferences. In a format closely resembling the Ghana Demographic and Health Surveys (GDHS), panel instruments recorded family planning knowledge, contraceptive use and intentions to use in the future. Beginning in

1995, husbands were also interviewed. In 1996, approximately 200 compounds in Navrongo town were added to the panel sample.

The Management Information System (MIS). A worker-based MIS has been devised to permit project monitoring in treatment areas and corresponding data in sample compounds of the comparison area. This system will be replicable elsewhere in Ghana, and will provide routine treatment area performance data by month for the project period. MIS will report information on intermediate impact: contraceptive prevalence by method, immunization coverage by modality, and other summary data on service activities and outcomes over time. Since data are recorded longitudinally, the MIS will provide a basis for research on contraceptive use dynamics over time for treatments of the experiment. These data will be computerized for research on the impact of outreach on contraceptive use dynamics.

The Geographic Information System (GIS). In December 1994, the NHRC completed work on a GIS that records exact information about location for all 11,500 compounds in the district. This information is used with the NDSS, MIS, and PSS to monitor the spatial distribution of change and the areal diffusion of family planning.

The Qualitative Research System (QRS). A standing social science research team is monitoring societal characteristics and social reactions to the project, reproductive change, and the consequences of experimental operations for women's roles and status. Repeat focus group rounds will be used to monitor changing perceptions of the program.

The Financial Management System (FMS). The NHRC maintains detailed computerized cost accounting information, permitting economic analysis of the cost of program inputs in relation to any impact that may be achieved. The FMS permits the CHFP to partition costs into service and research components, and to examine the question of what incremental inputs are required to replicate the CHFP operation elsewhere.

Assessing the Determinants of Reproductive Change

Regression models will be utilized to assess change in Figure 1.2 dependent variables that are associated with program activity, adjusting for characteristics of women in the baseline period. Models can be behavioral (eg. contraception), or attitudinal (eg. desire for additional children; intention to contracept in the future, etc.), in keeping with the specified framework. These models will be specified in detail in Chapter 5. Although statistical models, and their estimation,

are somewhat complex, their interpretation is quite simple. Each individual in the panel survey has a treatment cell where she or he resides. Program activity, or experimental treatment will test the extent to which exposure to program strategies explains contraceptive use (or other variables of interest), controlling for the possible contaminating effects of client characteristics.

The Navrongo project has been implemented in an experimental framework with statistical tests designed to determine whether or not hypotheses are supported or rejected. Rather small differences in rates of interest may achieve statistical significance, and statistically significant increases in contraceptive use are not likely to be regarded as policy-significant results. Therefore, we have set objectives for the experiment based on the concept of addressing "unmet need." Of the women interviewed in the baseline survey, 22.0 percent indicated a desire to space and an additional 2 percent wish to terminate future fertility. If contraceptive use increases in treatment cells to levels that address baseline "unmet need," fertility decline will achieve meaningful policy levels. Chapter 6 will examine this issue.

Operational Design of Treatment Area Services

Service components. As the hypotheses above imply, various elements of the operational design define varying degrees of service intensity for the three cells of the treatment area. These are described in Table 1.1 on the following page and conform to policy questions of the MOH.

First, it is important to note that little between-cell variance has been specified in regard to clinical services. In the three treatment cells and Kassena-Nankana comparison cell, all staff were retrained in family planning technologies and all workers were equipped with improved management capacities. For the most part, this program of clinical upgrading conformed to existing plans of the MOH, and did not introduce clinical resources that are nonreplicable elsewhere.

Second, technical competence for outreach was upgraded in the three treatment cells. This included introducing a new MIS, expanded community-based service delivery, community-based side effect management and referral, and special programs for communication, education, and liaison for family planning. The CHN were also reoriented to outreach services in health. This required practical field-based training in giving health education to community groups on nutrition, environmental sanitation, safe drinking water, immunization, antenatal care, oral rehydration, and family planning. CHN were trained in ambulatory care for common diseases

Table 1.1 Operational variance across treatment-area cells: Community-based components of the Navrongo Community Health and Family Planning Project, Ghana

	Cell I Zurugelu only	*Cell II Village-based MOH operations only*	*Cell III Zurugelu & village-based MOH operations*	*Cell IV Comparison*
Level B staff retraining for:				
• District health management team	√	√	√	√
• Screening/referral to District hospital	√	√	√	√
• Health promotional activities for...				
...sanitation	√	√	√	√
...STD/AIDS prevention	√	√	√	√
• Maternal health services:				
...TBA training	√	√	√	√
...resident midwives	√	√	√	√
• Ambulatory care by...				
...MA/Nurse-midwife, enrolled nurse	√	√	√	√
• Environmental health inspection	√	√	√	√
• Paramedical training for...				
...family planning services	√	√	√	√
...immunization	√	√	√	√
...ARI treatment	√	√	√	√
...diarrhoeal disease management (ORS)	√	√	√	√
Level B MOH Services (village based):				
• Outreach clinics by Level B staff	√	√	√	√
• Community Health Compounds (CHC)		√	√	
• Resident CHO		√	√	
• CHO backstopping for TBA		√	√	
• Motorbikes for CHO compound outreach		√	√	
• Outreach to chiefs & elders (for CHO-CHC or YZ introduction)		√	√	
• Management improvements for...				
...MIS		√	√	
...Upgrading supervision	√	√	√	√
• Logistics support for...				
...motorcycle fuel & maintenance	√[a]	√	√	
...village-based pharmaceutical supplies	√[a]	√	√	
Zurugelu: Village mobilization of...				
• Chieftaincy & lineage system	√	√[b]	√	
• Traditional communication (durbars)	√		√	
• Nontraditional communication (drama troop)	√	√	√	
• Male social networks	√	√[b]	√	
• Women's associations	√		√	
• *Yezura Nakwa* (health committies)	√		√	
• *Yezura Zenna* (volunteers)	√		√	

Notes: a) Supervisor only; b) community mobilized only for CHC construction.

such as malaria treatment, parasite treatment and control, and diarrhoeal disease management. CHN were trained to carry out home visits to trace family planning and immunization defaulters,

identify newborn infants, screen for malnourished children, and provide health education about environmental sanitation and other compound-specific issues.

The range of modalities offered as outreach services did not vary between treatment cells, rather, the mode of service delivery and the role of communities in service delivery was varied. By assigning CHN to village locations in Cells II and III, however, the experiment tested the role of increased CHN accessibility and contact. In *Zurugelu* cells (I and III), CHN were trained in community organization methods and supervisors assisted them in establishing a community health service management system. Village health committees, termed *Yezura Nakwa* (YN), were established in collaboration with chiefs, elders, key groups. Meetings were convened to discuss issues concerning health and family planning. Community direction and participation was nurtured at all stages in this program. In all three treatment cells, CHN served as the link between clinical and community-based services. This involved referral services and procedures designed to establish the CHN as the primary health care resource of the community.

In general, all treatment areas had some form of local clinical services at village locations. All treatments assigned CHN clearly defined geographic areas of responsibility. All study areas have trained Traditional Birth Attendants (TBA) supervised and assisted by CHN. A possible limitation of the nurse outreach approach is that the density of nurses may have been insufficient for the needs of the population served. Intensive outreach and coverage may require a village cadre that provides information and services that CHN did not have time to provide. Although plausible as a concept, the village health worker scheme has proved difficult to implement in northern regions of Ghana. Workers engaged in the activity incur opportunity costs for the time spent on health work. Yet, MOH regulations have disallowed payment of salaries or compensation to volunteers. In the northern areas of the country, few women are educated, and those who could qualify for training rarely stay in the village and leave for opportunities in Accra or other areas of the south of Ghana. An issue to be researched is whether the *Zurugelu* System can substitute for CHN services, or whether CHN operating alone can address the needs of communities (Cell II). Relocating CHN from clinics to communities cost CHN the amenities and residence facilities supplied by the MOH. Therefore, relocated CHN were given compensation for village assignments.

Activities of the project were directed to clarifying operational elements of the *zurugelu* approach. Plans called for identifying all traditional community lineage groups (a hierarchal

structure) and all informal communication networks. In traditional society, men form groups for cooperative labor, planting, and trade purposes. These groups are headed by *bia-pe* who are elected periodically by members. Somewhat less structured groups also exist for women. In the *zurugelu* system, chiefs and elders appoint a YN that closely liaises with *bia-pe*, sponsors group meetings around health and family planning themes and activities, and coordinates volunteer activities.[10] Pharmaceuticals were distributed to the YN which managed proceeds from the service delivery, and revenue was used to compensate volunteers for their costs. In areas where CHN are assigned to village locations (Cells II and III), communities were invited to participate in planning this initiative. In Cells I and III, this community participatory process focused on developing the role of *zurugelu* committees. The Navrongo experiment developed procedures for community-based distribution of condoms, pills, and injectables. Although injectables were provided by CHN only, to the extent possible, volunteers in Cells I and III will be involved in family planning service delivery, as well as basic primary health care.

Comparison Area Services

Comparison areas have been matched to treatment areas for cultural characteristics and the level of baseline health service implementation. Research was implemented in comparison areas, but care was taken to avoid contamination of comparison areas with intervention-area services.

A core system of maternal and child health services is being developed for the entire population of Ghana that comprises the information, service, and management components of essential family planning services located in clinics throughout the country. This "basic system" is also comprised of social marketing and information, education, and communication. The proposed investigation is premised on the view that clinical family planning, social marketing, and IE&C are essential elements of any successful family planning strategy in Ghana, and these elements must be in place for community services to work. For this reason, basic services were provided in comparison areas, as shown in the upper panels of Table 1.1.

The CHFP has aimed to solve operational problems that concern static services in both treatment and comparison areas, although comparison areas retained their present clinic-based orientation. Fuel problems, training deficiencies, and other factors that artificially constrain clinical health care have been resolved to the extent possible with replicable resources throughout Kassena-Nankana District. In the course of the project, both treatment and

comparison areas have received technical support for basic training for existing clinical outreach staff, for the introduction of basics, and for the resolution of logistics and supply problems, fuel shortages, and vehicle problems.[11]

Developing Operations

Little is known about effective strategies for mobilizing community health and family planning services in northern Ghana. Developing strategies for relating to communities, explaining the program to individuals, and involving traditional leaders occupied the early months of the CHFP. A pilot was launched in February 1994 that involved constituting consultative groups of village leaders, mothers, and health service providers to review their health service experiences and recommendations and implementing community recommended service systems in a three-village micropilot area.[12] One outreach area from each treatment was selected, a community nurse was trained and assigned to each Cell II and III pilot village, and corresponding pilot *zurugelu* activities were launched in three Cell I and III villages, as specified in Table 1.1. Focus groups, observational methods, and field reports were used to diagnose operational problems and to change strategies, as needed. Thus, the operational plan for the experiment was based on experience with a small-scale pilot and practical community advice on what works best and what does not work at all in this setting.

In the original design of the project, Phase I was intended to be conducted quickly, with the aim of finalizing detailed operational guidelines for Phase II within six months. However, funding delays and related implementation problems extended Phase I for 18 months. The outcome of Phase I was a detailed operational plan for the project to be launched in Phase II. Phase II will extend over a period of at least four and one-half years, of which 18 months has been completed at the time of this report. This long-term Phase II observation will provide a sustained trial of CHFP operations and assess the impact of interventions on fertility.

National-level utilization of results need not wait for the completion of the experiment, however, as lessons are learned, services have been scaled up in the national program. This process is described in Chapter 9.[13]

Conclusion

The Navrongo project has been designed to develop culturally appropriate systems of family planning service delivery and test the impact of this service system over an extended period of trial. The pilot phase was completed at the end of 1995, the district-wide experiment was phased in by mid-1996, and observation of the scaled-up project began at that time. The present report is therefore a presentation of preliminary findings. Although constraints on family planning in Africa are well documented, little is known about what can be done to respond to community perspectives on how programs should be designed and whether such a program will work. Even the most basic questions concerning the role of family planning in Africa thus continue to be the subject of discussion and debate. Unless field studies are conducted, it will not be clear whether the limited impact of programs derives from weak demand for services or from inappropriate models for the supply of services. Recent plans to strengthen family planning components of primary health care have not yet been investigated in formal field trials with intervention and comparison areas.

At present, community health efforts in Ghana are oriented to technologies, facilities, and categorical programs rather than to communities and health service outreach needs. This project is designed to demonstrate means of changing this program to a more community-oriented approach. Ever since 1978, the MOH has aimed to develop community-based primary health care. The Navrongo experiment has aimed to demonstrate feasible means of implementing this longstanding goal in an inauspicious social and economic environment. If the experiment succeeds, results will demonstrate that no Sahelian setting is fundamentally inhospitable to the introduction of community-based primary health care and family planning.

The CHFP adapted service delivery systems to the Kassena-Nankana cultural setting and implemented a rigorous field trial to test the impact of this service system in a rural area of northern Ghana. Although constraints to family planning in Africa are well documented, social research often fails to demonstrate precisely what must be done to overcome the barriers to effective program operations. This report documents progress with this trial.

The setting chosen for this project is an extremely inauspicious environment for family planning. Achievements registered in the context are indicative of what can be achieved in difficult settings elsewhere in the sub-Saharan region. Thus, success in this trial will be useful, not only in Ghana, but to deliberations in the population policy community in general. Successful

health and family planning trials in East and South Asia provided useful lessons to the international assistance agencies. Systematic scientific trials in West Africa will provide insights into how health and family planning services are best designed in this region and what their impact is likely to be under practical field conditions.

Notes

1 Kassena-Nankana District was selected in 1986 as the site of the Ghana Vitamin A Supplementation Trial (VAST) because the area is known to be a region with extensive nutritional adversity. Research capacities developed for the VAST initiative are increasingly recognized as a resource for health research. Achieving an understanding of the impact of vitamin A on health and survival required assembling a scientific research staff, developing modern laboratory and data management capabilities, establishing field management systems, and instituting comprehensive demographic surveillance in a large rural population. These capabilities have been a resource in a variety of studies of health status, nutrition, and malaria prevention. The NHRC demographic research system has been developed on the model of similar systems operating in Indonesia and Bangladesh. Demographic surveillance technology was provided to the NHRC by a Population Council research initiative funded by the Rockefeller Foundation (See MacLeod et al. 1992).

2 This type of comment has been noted in studies from elsewhere in the region (See, for example, Caldwell and Caldwell 1990a and 1990b).

3 UNICEF has sponsored child health initiatives designed to improve the coverage of basic preventive health measures, collectively referred to as Growth Monitoring, Oral Rehydration, Breastfeeding, and Immunization (GOBI). More recently, UNICEF has sponsored the Bamako Initiative, which is designed to improve sustainability and community participation in primary health care.

4 This problem was recognized by President J. J. Rawlings in his address to the Cairo Conference on Population and Development when he appealed for "flexibility and respect for locally-tailored programmes" (Rawlings 1994).

5 The design of the Navrongo Experiment is reviewed in Binka et al. 1995a and Nazzar et al. 1995.

6 Various policy documents appeal for "Community Initiated Clinics" (Technical Coordination and Research Division 1994), "Community Health Posts" (Monekosso 1994) or "Community Based Distribution" (National Population Council 1994). The CHFP aims to provide operations research on what this means in terms of District Health Team tasks and actions. An appeal for this type of investigation appears in the Research Priorities section of the 1994-95 Policies and Priorities Statement of the MOH (1994).

7 The Navrongo Experiment is the first true experiment of family planning impact to be conducted in Africa (Phillips, Greene,and Jackson 1998). First, compound clusters, villages, and paramouncies were grouped into zones representing administratively feasible treatment blocks. Treatment conditions were assigned to each of the four blocks by simple random sampling.

8 In the informal literature and vernacular use of the term "bureaucratic," a bureaucracy has a pejorative connotation. In this report, bureaucratic is used in the technical, sociological sense of a formal organization with a vertical structure, delineated roles, and defined operational rules.

9 In the local dialect, a translation for *zurugelu* is *Alag gube n de kewgo*, which means "cooperating together is strength" or "community togetherness." This is roughly equivalent to the Swahili term referring to the "*harambee*" spirit, used in Kenya to describe community activities requiring collective action and volunteerism.

10 Current investigations focus on determining the appropriate role for *bia-pe*. Focus group investigations will determine whether *bia-pe* are best utilized for communication and community liaison only or whether services can also be provided by *bia-pe.* Individuals express concern about confidentiality of family planning information, and want CBD agents to be individuals who can be trusted to keep secrets. Because *bia-pe* are gregarious opinion leaders, we expect that they will be more effective as communicators than as service providers.

11 The project will not add vehicles to the standard allocation. However, where vehicles are not functioning or where standard allocations are not implemented, efforts will be made to correct problems.

12 Phase I has already begun in the three pilot areas. A consolidation of findings and recommendations will be conducted in Phase I (Nazzar et al. 1994).

13 For research purposes, priority will be consigned to scaling-up operations in noncomparison area districts.

Chapter 2

The Sociodemographic Context for the Experiment

Introduction

The Kassena-Nankana District is typical of the challenging development circumstances in Ghana's northern regions. Fertility and mortality remain high; economic, social, and religious traditions lend strong support to pronatalist beliefs and norms; educational attainment is low, particularly among women; modern forms of communication and transportation have yet to be developed. Evidence that the Upper East Region ranks among the poorest regions in Ghana has led the Government of Ghana to designate the Kassena-Nankana District as a special research zone for assessing health problems in the area and testing means of addressing them.

This chapter briefly reviews features of the locality that lead to this pre-project premise. We review the geographic and economic setting for the study, background demographic characteristics of the population, social characteristics of women of reproductive age, and the social-organizational context of the study area. Findings from this baseline review have had important strategic implications for the design of CHFP field operations. The chapter concludes with a summary of ways in which findings from baseline social research have guided operational planning. Systematic investigation of the sociodemographic context has been crucial to designing culturally appropriate health and family planning services.

Geographic and Economic Contexts

Kassena-Nankana District is comprised of 1,675 square kilometers of sub-Sahelian guinea savannah grassland on Ghana’s northern border with Burkina Faso, with an annual rainfall of 852 mm concentrated in the May to September period (ICOUR 1991). The ecology of the area is more characteristic of the Sahelian heartland of countries to the north of Ghana than of its southern regions. Although subsistence agriculture represents the mainstay of the local economy, cultivation is restricted to a single growing season that extends from May through November. Erratic and

unreliable rainfall patterns often lead to poor harvests. Nutritional adversity is common, exacerbating the mortality impact of infectious disease morbidity. The fertility implications of seasonal adversity are unknown, but it is widely believed that high mortality reduces interest in limiting fertility (Juarez 1993). The geography and human ecology of the area accentuate social isolation and complicate efforts to organize health and human services in the locality.

Poverty and economic isolation greatly complicate efforts to improve health conditions. Although exposure to outside ideas and influences arises from trade and migration, the study district remains isolated and rural. All available evidence suggests that this has long been the case. For centuries in the past, the northern regions of Ghana were separated from the great Ashanti and Mossi empires to the south and the north, a pattern of isolation that continued in the colonial area, and persists to the present (See, for example, Rattray 1932). As a consequence, unique local customs govern marriage and family building, traditional religions predominate, and traditional forms of village government and social organization persist.

Two distinct ethno-linguistic groups comprise most of the district's population, of which slightly more than half are Kassim speaking and the remaining are mainly Nankam speaking. Kassim and Nankam are quite different languages, but despite this dual-linguistic identity, the Kassena-Nankana are in most respects a homogenous group with a common culture.

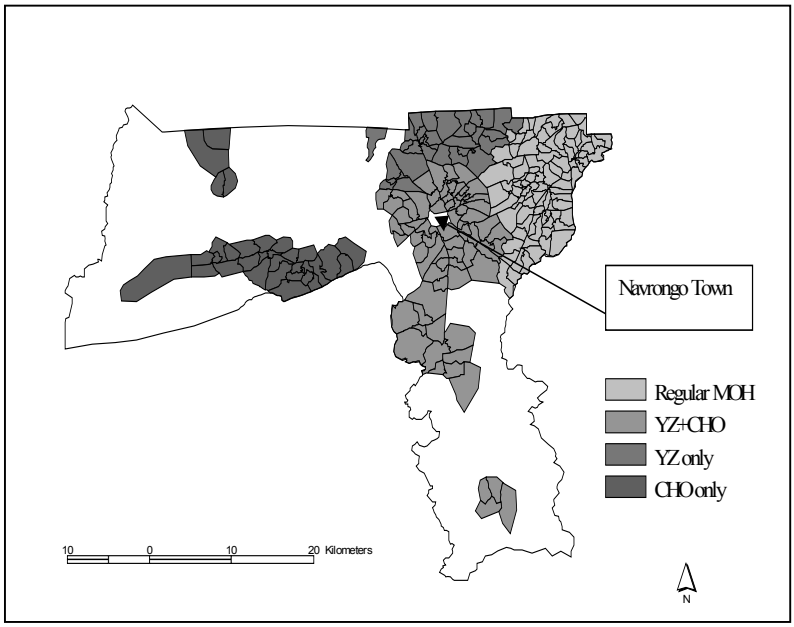


Figure 2.1 CHFP cells of the Kassena-Nankana District

The settlement pattern is highly dispersed, and dwelling areas are often inaccessible by road. Households lack addresses, necessitating extensive project investment in creating maps and addresses to accurately delineate the area into the four cells of the CHFP experiment (Figure 2.1.) Each cell has a health center,

termed “Level B” where basic health services are offered. The designation of villages into treatment zones was designed to assign treatments to catchment areas of each health center. After developing appropriate treatment areas, cells were randomly assigned as shown in Figure 2.1. Cell I (village volunteers-*Yezura Zenna* or YZ-only) is in the northern most part of the district; Cell II (community resident nurses-CHO-only) covers compounds in the west of the district; Cell III (CHO and YZ) comprises the central part of the district, minus Navrongo Town, and compounds are located in the south zone. Finally, the comparison area, Cell IV (Regular MOH), is located in the eastern part of the district.

Demographic Context

Population size and composition. The baseline population characteristics are presented in Table 2.1. On January 1, 1994, the surveillance population was 123,027. As of July 1, 1997 this figure rose to 139,634 out of which 13,950 people were living in Navrongo town, an area included in the surveillance region only as of December 1995. Population dynamics indices presented in Table 2.1 for the calendar year 1994 suggest a low-growth rate (about 0.4 percent per year) due to the net effect of migration over the rate of natural increase, a situation that is typical of district populations elsewhere in northern Ghana.

The single-year age composition of the population in July 1995 reflects a deficit of males relative to females (47 percent versus 53 percent, respectively) owing to a gender imbalance in out-migration from the district (Figure 2.2). This has also produced a distortion of the age structure among young adults. The study area population is young, with 44 percent age less than 15 years and only about 4 percent age 60 years and over.

Migration. Although the Kassena-Nankana population is isolated and impoverished, extensive external migration exposes individuals and families to external ideas, aspirations, and behavior. The high rate of external migration is illustrated by the pattern of age-specific net migration rates shown in Figure 2.3. Rates of net migration are always negative for females between the ages of 10 and 24, and a similar pattern is observed for males in the 10-49 age group. The gap between the net migration curves in Figure 2.3. suggests that external migration is more intense for males as compared to females, and indicates the possibility of earlier return migration among females as compared to males.

Table 2.1 Population size, composition, and components of change for CHFP treatments, Navrongo town, and Kassena-Nankana District, 1994

	Treatments				
Population size & dynamics	*1*	*2*	*3*	*4*	*All NDSS*
Proportion of total population (%):					
...infants	1.5	1.7	1.6	1.6	1.6
...children under 5	13.3	13.5	13.1	13.9	13.4
...adolescents (10-24)	29.8	26.5	29.6	29.2	29.0
...women (15-49)	24.0	22.2	23.0	24.1	23.4
Total population	19,315	17,498	45,746	40,468	123,027
Crude rates of population change					
Crude birth rate	32.3	38.3	31.4	37.2	34.4
Crude death rate	16.2	21.3	19.1	19.9	19.2
Out-migrants per 1000 pop.	61.3	71.3	59.2	75.8	66.7
In-migrants per 1000 pop.	50.3	62.1	45.1	66.1	55.2
Net migration rate per 1000 pop.	-11.0	-9.2	-14.1	-9.7	-11.5
Crude rate of pop. change (%)	0.5	0.8	-0.2	0.8	0.4

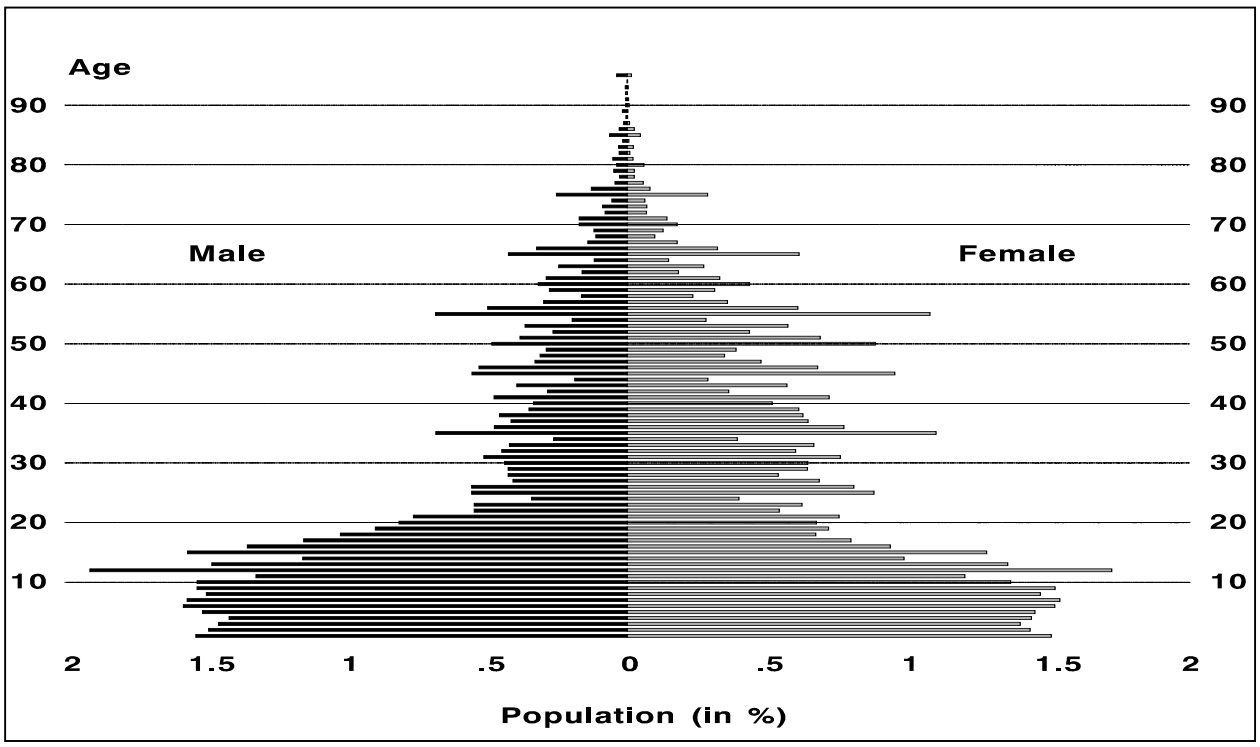


Figure 2.2 Single-year age composition of the population of Kassena-Nankana District, July 1, 1995

Mortality. The Kassena-Nankana population experiences high mortality risks that are characteristic of rural populations elsewhere in the Sahelian region. This is reflected in the U-shaped curve representing the baseline age-specific mortality rates for the 1994-95 period (Figure 2.4). Death rates are very high in infancy, decrease to reach a minimum in the 10-19 year age group, and then increase sharply thereafter.

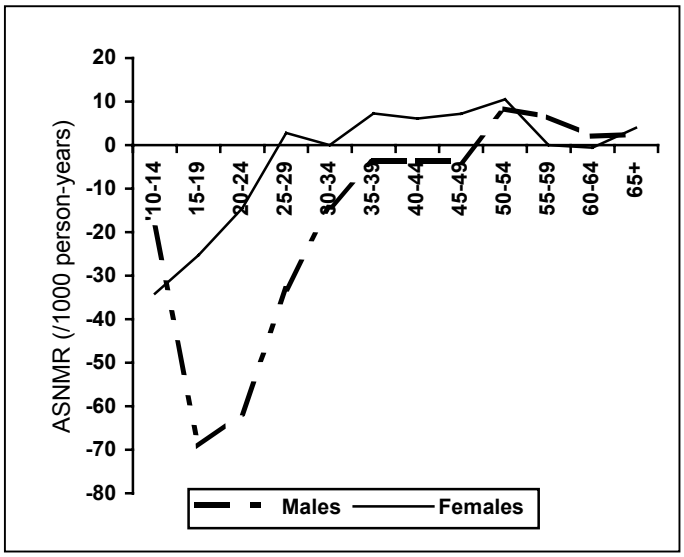


Figure 2.3 Age-specific net migration rates per 1000 person-years, 1994-95

Figure 2.4 suggests that sex differentials in mortality are only substantial at older ages where males seem to be disadvantaged. The major causes of such high levels of mortality death are malaria, diarrhoeal diseases, and respiratory infections (Binka et al. 1995). These direct causes are intensified by various nutritional and environmental factors that elevate infectious disease morbidity and by economic and social factors that diminish affordability and accessibility.

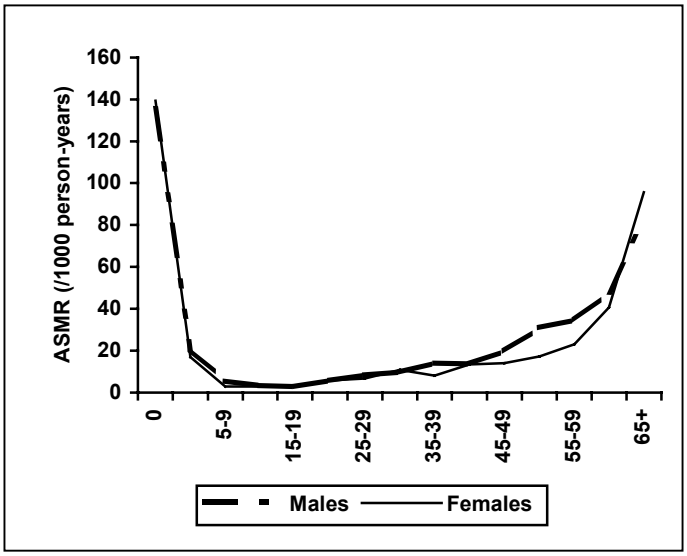


Figure 2.4 Age-specific mortality rates per 1000 person-years, 1994-95

Baseline mortality data are presented in Table 2.2 for the July 1994-June 1997 period. Overall mortality levels were quite stable for the 1994/96; the neonatal mortality rate was 45.8 neonatal deaths per 1000 live births in 1994/95 and 43.3 in 1995/96; the infant mortality rate was stable at 122.7 and 124.7 infant deaths per 1000 live births in 1994/95 and 1995/96 respectively. These high levels of mortality explain in part the poor life expectancy at birth in the study population, 47.4 years in 1994/95 and 48.3 years in

1995/96. Mortality rates for the 1996/97 period were much higher as compared to those observed in 1994/95 and 1995/96.

Table 2.2 Mortality levels and trends, Kassena-Nankana district, 1994-97

	July 94-June 95			*July 95-June 96*			*July 96-June 97*		
Rate	*Male*	*Female*	*All*	*Male*	*Female*	*All*	*Male*	*Female*	*All*
Infancy									
Neonatal mortality rate	48.2	43.3	45.8	42.8	43.8	43.3	59.1	29.7	44.1
Post-neonatal mortality rate	72.1	81.9	77.0	72.8	89.9	81.4	86.6	87.7	87.2
Infant mortality rate	120.2	125.2	122.7	115.6	133.7	124.7	145.7	117.4	131.3
$_1q_0$	123.8	126.9	125.4	109.9	127.9	119.0	142.2	121.7	132.0
Childhood									
Childhood mortality rate	20.7	17.0	18.8	21.7	22.4	22.0	32.1	27.1	29.6
All ages									
Life expectancy at birth	45.8	48.6	47.4	47.6	48.5	48.3	42.6	47.4	45.2
Life expectancy at age 15	43.6	45.7	44.9	44.9	47.6	46.5	43.6	47.3	45.8
Crude death rate	19.2	17.2	18.2	18.1	18.1	18.1	21.5	18.4	19.9

Source: NDSS database, May 1998.

*Fertility***.** Direct estimates of age-specific fertility rates and the total fertility rate (TFR) are presented in Table 2.3. Age-specific fertility rates indicate that fertility is low for a noncontracepting society owing to the fertility reducing effect of lactational amenorrhea and the prevalent practices of spousal separation owing to migration and other factors. The total fertility rate is therefore about five.

As Table 2.3 shows, age-specific fertility regimes are characteristic of patterns observed elsewhere. Fertility increases during adolescence to the peak years of childbearing: 20-29. Fertility declines monotonically in the 30s to menopause in the 40s. Table 2.3 suggests that overall fertility may have declined, a proposition to be investigated in Chapter 6.

In summary, mortality is exceedingly high, particularly among infants. Net out-migration from the study area is also high, producing a situation in which the dynamics of high fertility are offset by external movement and mortality. Population growth in the area is low as a consequence. Fertility is low given the fact that contraception was not yet practiced in the baseline period.

Table 2.3 Age-specific fertility rates (per 1000 person-years), Kassena-Nankana District, July 1994–June 1997

Age groups	*7/94-6/95*	*7/95-6/96*	*7/96-6/97*
15-19	88.4	85.1	90.9
20-24	235.2	234.2	231.2
25-29	240.8	232.7	224.7
30-34	217.0	200.8	202.5
35-39	159.4	150.4	145.3
40-44	87.0	74.2	75.1
45-49	30.9	37.3	31.8
TFR	5.3	5.1	5.0

Source: NDSS database, May 1998.

Social Context

Factors Constraining Reproductive Change

The societal context for the experiment remains traditional. This climate of traditionalism is reflected in the baseline demographics reported in Table 2.4. More than a third of all currently married women are in polygynous unions. Educational attainment remains low, literacy for females ages 15-49 is only 15 percent, further isolating women from the outside world.[1]

Various cultural traditions restrict the autonomy of women and impede the introduction of new ideas and technologies. In the baseline survey, about 80 percent of the women interviewed about their roles note that travel outside their compound requires the permission of others (Debpuur et al. 1994). The consequences of constrained autonomy of women are reflected in survey responses and clarified in focus group investigations.

Individual respondents often state preferences and intentions that are consistent with family planning practice. Response distributions reported in Table 2.5 show, for example, that 30 percent of currently married women state that they will use a method within a year; an additional 14 percent intend to use a method in the distant future. Much of this demand is more apparent than real, however. Levels of knowledge about contraception are low, ever use is very low, and current use of methods is rare. When this gap between intentions and behavior is reviewed in focus groups, the consequences of low women's autonomy become graphically evident. Responses of individuals to survey questions say little about obligations to subordinate personal preferences to the needs and views of husbands, relatives, and kin. Although women feel obligated to discuss contraception with others before adopting a method, few have ever done so. Women rarely discuss reproductive

preferences with husbands; most will not risk doing so. Even a supportive husband may find little scope to encourage his wife to adopt a method because multiple actors must be involved in contraceptive decisionmaking. Discussing contraception with others is embarrassing, in part because few men have any idea about what contraception is, and even less information about the views of others. Thus, men express the view that contraception is something that must be kept secret. These pronatalist beliefs are rooted in lineage customs, labor, and agricultural practices that enhance the economic value of children and other interrelated pronatalist rites, customs, and beliefs.

Table 2.4 Background characteristics of women ages 15-49 in the Kassena-Nankana district, 1993

	All women = 3859		*Currently married women = 2903*	
Characteristic	*No.*	*%*	*No.*	*%*
Literacy				
Yes	459	11.9	239	8.2
No	3,397	88.0	2,661	91.7
Polygynous				
Unmarried	956	24.8	—	—
Polygynous	1,202	31.2	1,202	41.5
Monogamous	1,692	43.9	1,692	58.5
Ethnicity				
Kassim	1,928	49.96	1,447	49.8
Nankam	1,710	44.31	1,279	44.1
Builsa	184	4.77	152	5.2
Other	37	0.96	25	0.86
Religion				
Traditional	2,663	69.0	2,107	72.6
Christian	1,051	27.2	684	23.6
Modern	116	3.0	91	3.1
Other	29	0.7	21	0.7

Source: Panel Survey System, 1998.

Table 2.5 Intention to use a family planning method among nonusers

	All women = 3715		*Currently married women = 2786*	
Use in the future	*No.*	*%*	*No.*	*%*
No	1,878	50.6	1,328	47.7
Soon	979	26.3	829	29.8
Later	525	14.1	383	13.7
Unsure	333	9.9	246	8.8

Source: Panel Survey System, 1994.

Current prescriptions for resolving the problem of high fertility in rural Ghana focus on making contraception available to individual women in convenient village locations (National Population Council 1994). This policy is derived from survey findings showing that many women have more children than they desire and that family planning would be used if methods were

available (Ghana Statistical Service 1994). Since services are inaccessible to most women, the implication of research seems obvious: Increase the number of service points, expand the program of outreach, and promulgate messages in the mass media in ways that make information and services as convenient as possible. Underlying this investment is the assumption that inaccessibility of modern contraceptives constitutes the most important barrier to use (National Population Council 1994). Navrongo research challenges this assumption, however. Constraints on adoption are less related to accessibility than to perceived social costs. Women discuss the role of men as impeding their personal choice, as if they would personally practice family planning if ways could be found to foster support from their husbands.

In sub-Saharan Africa, several influential observers have argued that the future of fertility control is bleak in the region owing to deeply rooted cultural and social institutions that structure high fertility (Boserup 1985, Caldwell and Caldwell 1987). High fertility norms constrain the reproductive autonomy of women by restricting the decisions that women can safely make in the extended family. The project has examined influences on reproductive motives that derive from the system of kinship and village organization, religious beliefs and practices, economic institutions, land tenurial customs, and agricultural practices.

Marriage, spousal relations, and gender roles. Analyses of the African family and gender relations invariably emphasize the pronatalist influences of the institutions of lineage, polygyny, and the family in which husbands are the dominant fertility decisionmakers (Lloyd and Brandon 1993). Gender dynamics between males and females weaken the autonomy of women to implement their preferences. Domestic power relationships, control over and use of family resources, and the decision to seek health care for sick children and adults are all vested in males. The dominant role of males, in turn, is influenced by customs surrounding polygyny, bridewealth, and the tenets and practices of the animist religion. Of the Kassena-Nankana marriages represented by women interviewed in a recent survey, fully 31% were currently polygynous (Debpuur et al. 1994). Although representing a minority of all marriages, the prevalent practice of polygyny has a profound effect on spousal relations. First, spousal communication about reproduction is weak.[2] Polygyny fosters the segmentation of gender roles and isolates women from decisions of importance to the immediate family or kin. Men who are interviewed about polygyny often describe the institution of polygynous marriage as a custom that will assure them of having the many children they want.

Women are married through agreements between families, although courtship is initiated by the potential couple, with the senior men responsible for paying bridewealth. This payment, in turn, is often associated with the expectation that a bride will have children soon. It is expected that sons will contribute to the wealth of the extended family, and the daughter will bring wealth to the family through marriage.

A married woman is thus viewed by men as property, with little personal autonomy to form or implement preferences as individuals, although they may implement social decisions by influencing their husbands. Many women state that they have had as many children as they want, but the same women view decisions about childbearing as the prerogative of other significant members of the family.

Children are also considered property of the extended family and male lineage. This notion of children as property of the corporate family is reinforced by dwelling customs, cooking arrangements, and fostering customs. Living arrangements separate the sleeping rooms of women from their husbands. The distribution of space is associated with cooking pot units and shared responsibility for childrearing among co-wives in extended families. The practice of fostering diminishes the costs of children for any particular woman. Notions of women and children as property are instituted by bridewealth customs which represent an investment of the corporate family in the production of children. This, in turn, diminishes the reproductive autonomy of women and the credibility consigned to their individual health or reproductive concerns. Strong son preference is indicated by both men and women, in part because sons bring wealth and security, but mainly because sons perpetuate the lineage. The fertility implication of this is that women with only sons will all at least want to have one daughter. It is important for a woman to have children early in marriage, and to eventually bear at least one son. Daughters are also desireable. Daughters extend the relations of the compound to other descent groups and make the compound famous. The husbands of daughters are very important in performing the funerals of their in-laws. Thus, women with sons will also want to have at least one daughter.

Familial gender relations translate into pervasive constraints on the autonomy of women, a problem noted in regional research on the African family.[3] Among the Kassena-Nankana, consequences of early marriage combine to perpetuate the low status of women by conditioning women to accept their fate as bearers of many children. Early childbearing is a necessity for newly-

married women, and high fertility is a source of prestige to women of all ages. In general, women in discussions note that family problems can be discussed among peers, particularly matters concerning earnings, farming, and other domestic decisions.

Lack of spousal trust is reflected in the reluctance of men to allow wives to practice family planning because women who have control over their fertility may become unfaithful. Male respondents openly discuss their view of women as property, threatening violence if their needs are not fulfilled. A tragic consequence of fragmentary spousal communications, severe gender bias, and constrained autonomy of women is the prevalent violence against women among the Kassena-Nankana. Men often speak of violence as socially acceptable and normal. An exchange among male opinion leaders about conjugal relations reflects a profound lack of regard for women's opinions and concerns, and casual acceptance of domestic violence. Some respondents question the right of a man to beat his wife, but more typically a woman is viewed as someone with functions and duties, of which sex and childbearing are among the obligations to be honored without question.

Violence in response to conjugal discord is viewed by many men, not only as a man's right, but as a social duty. A man's position in such conflict is supported, not only by his own family, but also by his wife's extended family. Fertility regulation is tantamount to conjugal refusal, depriving a man of his sense of sexual ownership of women and threatening husbands with derision and ostracism among male peers. Women as individuals may want to regulate fertility, but fear the consequences of even discussing this preference with husbands.

Spousal noncommunication, mistrust, and fear of violence weaken the significance of a woman's reproductive preferences in deciding the number of children she will ultimately conceive. In the baseline survey, fully 71.6% of married Kassena-Nankana women had not discussed family planning with their husbands during the last year (Debpuur et al. 1994).[4] Given the often rigidly segmented familial roles of husbands and wives among the Kassena-Nankana, women's reluctance to discuss preferences with spouses, and the tendency to restrict discussion of reproduction to dialogue among peers—low levels of contraceptive use are not surprising.

Religion and reproductive beliefs. The Kassena-Nankana are polytheistic animists who worship ancestors and spirits that are believed to dwell in trees, rivers, groves, hills, rocks, and elsewhere in the environment. They also believe in the existence of a supreme being. The proportion of people professing to practice indigenous traditional religion varies somewhat from study to study

because respondents are not always certain of their religious affiliation, choosing to practice elements of both animism and Christianity. The boundaries between religions thus lose their meaning.[5] In the traditional Kassena-Nankana cosmology, the universe is divided into two worlds: The physical world which they believe is the home of the living, and the spiritual world characterized in discussions as "the unseen" (Evans-Anform 1986). The unseen world harbors all departed souls and forms the spiritual home of the ancestors. Although belief in the existence of the supreme being among the Kassena-Nankana is widespread, influence of this belief on daily activities is weak. As one informant observed in a discussion, "We know there is a mightier God, though we worship our ancestors and the lesser gods."

Next to the supreme being in the cosmology are lesser gods. These gods are either shrines or personal gods (*tengani/yini* in Nankam; *tangwam/we* in Kassem). A *tangane* (shrine) is commonly shared by a group who consider themselves as one people. Spirit gods are owned by individuals and are supposed to help them achieve their dreams in life, such as marrying many wives and having large numbers of children. The end of a lineage thus represents a spiritual catastrophe, confining ancestors to the afterworld forever.

Ancestral spirits are thought to wield so much power and authority that nothing can be done without their consent. The construction of a new compound, making a new farm, sowing and harvesting, marriage, or undertaking a new business venture all require consultation with ancestors. All matters concerning the clan, lineage, family and marriage require attention to ancestral spirits. When a new child is born, becomes sick, or dies, religious rites are required. It is believed the ancestors can cause misfortune, sickness, and even death when family members make decisions without deferring to their advice.

For this reason, CHFP investigators assumed that family planning practice requires consultation with ancestors and the guidance of soothsayers.[6] A program of investigation was launched to clarify the nature of spiritual consultation regarding reproductive health, and the impact of traditional religious practices on male acceptance of the CHFP. Various findings from this investigation have implications for the operational design of services.

First, a woman has no direct role in this process of spiritual consultation, in part because religion conveys autonomy on practitioners that is incompatible with the notion of women as property. A woman seeking spiritual advice about reproductive matters must first consult with her

husband, who must subsequently consult with the compound head, and then with a soothsayer (*baga* in Nankam; *choro* in Kassem) about the matter. This male dominance in the practice of religion reflects the importance of religion in maintaining the male-dominated lineage system. The marginal role of women in the practice of religious rites is expressed in terms of male control of property, the family, and soothsaying. Religious rites thus reinforce gender stratification, further isolating women from the process of familial decisionmaking, and preventing access to religious rites that could address their personal concerns. The role that men exercise as the arbiters of religious experience is jealously protected. A woman contacting soothsayers would be empowered to mobilize spirits who could threaten male roles in some way. The process of seeking religious guidance in family planning matters is thus unthinkable to women because traditions are more threatening on such matters than reassuring. The ultimate power of ancestors and spirits is a curse that could bring endless misfortune including sterility and child death if they do not approve of family planning. Angering them with reckless personal choices is thus fraught with great risk.

Among the Kassena-Nankana, ancestor worship contributes to high fertility motives. The spirit of a childless person is condemned to roam the ancestral world thirsty and hungry—obliged to beg for food and drink from the spirits of those who had children while on earth. This belief acts as an incentive to have many children, especially sons because only they can make sacrifices to the ancestors. There is believed to be a symbiosis between the living and the ancestors. Together they maintain a balance by which the living feed the spirits and the ancestors protect the living from calamities, making them prosperous, married and fertile. This keeps the family fruitful on earth and the spiritual world dwelling contentedly among them. In this tradition, high fertility is considered life's highest achievement.

In this belief system, soothsayers carry the intentions of the ancestors and explain why calamities befall individuals, a role that makes them the most influential members of society. The messages they carry to the people are often fertility laden and emphatically pronatalist. For example, a client may be told that the ancestors are requesting a sacrifice, after which he will be blessed with many children. Pregnancies are of great interest to soothsayers, as people will have to consult soothsayers about delivery. The role of soothsayers and their personal income is closely related to pregnancy, delivery, and the survival of children. The image of a soothsayer in society is enhanced

by dealing with many issues such as pregnancies, births, morbidity and mortality, much in the manner of a birth attendant who gains prestige from assisting in many deliveries.

It is appropriate, therefore to view women at the center of a decisionmaking system that involves first responding to the views of husbands, who may at times consult compound leaders about her concerns, who may then consult with soothsayers about mediating the will of ancestors on her behalf. At all stages, however, the personal preferences expressed by a woman in an interview matter little in this complex interplay of mediating individuals. Consultations about family planning are therefore fraught with considerable risk. Women must discuss reproduction with a husband who may have little regard for her personal views, or see little to gain personally from her fertility regulation behavior. Moreover, a man supporting contraceptive use may face derision from kin, rejection by his compound head, or counter-advice from the soothsayer. A woman making a decision on her own not only risks rejection by her family, but also risks the wrath of the gods. It is not surprising, therefore, that Kassena-Nankana couples have many children, and pursue reproductive regimes that are seemingly at odds with the preferences of individual survey respondents.

While the socioreligious system constrains women's autonomy, and indirectly supports high fertility, the CHFP has found less evidence that religious traditions affect the reproductive beliefs and behaviors of men. Lineage heads were interviewed about their reproductive preferences in conjunction with reinterviews conducted through the rites of soothsaying. Responses arrayed in pairs of such interviews could be compared to determine if religious practices produce more conservative preferences than men profess on their own. Interviews portray a greater degree of flexibility and openness to new reproductive ideas than was anticipated prior to the study. Traditional religion may not constrain the introduction of family planning among men. Rather, its impact is likely to be indirect and related to the role of religion in reinforcing the norms of a profoundly gender-stratified society.

Fertility implications of the lineage system. Descent among the Kassena-Nankana is patrilineal. The lineage is a corporate group in which members trace their descent through males to a known common ancestor or founding member of the patrilineage or *yire-zua* (in Nankam) or *so-yuu* (in Kassem). The members of a lineage include male and female children of male members but not those of female members. The lineage is the most important descent unit which recruits members at birth and consists of both the living and ancestors. Members of a lineage often belong to a

particular clan *buri* (in Nankam) and *buwa* (in Kassem). The clan is spatially defined, and members of a lineage and clan are considered to be one people. The Nankana use the word for clan, *so-o* to mean "one family." The Kassena also have a similar phrase to define family. The Kassena-Nankana consign central significance to lineage as a factor motivating high fertility.

Patrilineage and descent customs underscore the importance of sons. Male children inherit their father's immovable and movable properties, with the first son taking the largest share because he is responsible for the upkeep of all the extended family members who were once under his father's patronage. If a male's father was the compound head, he will also inherit this position. The properties inherited are land, houses, farms, cattle, and people. The lineage property is not inherited by the sons of the compound head but rather, must be maintained as an individual trust for the entire extended family. Only the personal property of a man is inherited by his sons. Brothers inherit each other's wives; widows are expected to continue to produce children for the extended family. Daughters and wives do not inherit anything in the family compounds; they are viewed as property to be inherited. This inheritance system rewards high fertility as women want to have many sons who will be eligible for inheritance.

The role of low levels of educational attainment in sustaining high fertility. Although women are members of the lineage, their participation and importance in lineage affairs is diminished after marriage. Because of this, little value is consigned to female education. Only 8.2 percent of all currently married women in the district can read, and more than 80 percent have no formal education. Most women marry as teenagers—perhaps because they are valued for the bridewealth they bring to the family. Men have higher levels of educational attainment than women because educating boys is viewed as an investment that is repaid in the future through remittances and other obligations. Although men have more education than women, it should be noted that educational levels are generally low for both sexes.

Studies conducted elsewhere in Africa have shown that lack of education or very low levels of education lead to high fertility (Cochrane 1979, Gyepi-Garbarah 1985). Women with little education have less autonomy if all activity relates to familial or traditional institutions. Women with low educational backgrounds are more subservient to custom and tradition, and are less inclined to undertake behavior that is at variance with established norms, values, and ideas. Among the Kassena-Nankana, reproductive behavior is not seen as a matter of individual choice as observed in

many parts of the world. Choices are made by the family, lineage, and clan for individuals to follow. Motives that underlie behavior are defined by set patterns, a web designed by the spirits, ancestors, lineage heads, compound heads, old women, husbands, and wives who are guardians of the interest of the extended family. This lack of autonomy inhibits the ability of women to adopt modern contraception.

In the course of the baseline research program, it was apparent that introducing family planning and primary health care would be challenging in the study area because few people are informed about underlying concepts. Married men and women require extensive education about the concepts, benefits, and mechanisms of family planning. In the absence of adequate information, men whose wives are contracepting will be subject to derision among their peers. An important need is to diffuse tension about the concept of fertility regulation, and to establish that family planning is normal and proper behavior.

A further requirement is the need to educate couples about what family planning is and how methods work. Several respondents note that improved knowledge of methods would lead to use, because some couples are motivated to limit fertility but lack practical information on methods and how they work. Misconceptions about contraception abound. Many believe that family planning can inflict harm, infertility, and even death to those who practice it. Rumors run rampant without counter-education to offset their effect.

The problems of introducing family planning in a society where educational attainment is low are amplified by these prevalent misconceptions about contraception. Men and women who are asked to comment on the term that has been used by the national program for family planning, *adog-maake,* view it as "have had enough". The Kassem translation of the term family planning is *lorilao* meaning "to have a good birth". This term does not have the connotation of danger that is associated with *adog-maake*, but it nevertheless emphasizes the birth process rather than the positive aspects of childspacing. Childspacing is a tradition that is respected, while contraception remains a subject that is embarrassing to divulge.

Women do not feel they can make decisions regarding their fertility. Not only is childbearing not a matter of personal choice, it is God's choice or their ancestor's choice. Fatalism about fertility undermines the notion that a woman can exercise control over her fertility or her body. For example, when women are interviewed about the fertile period, few (2.9%) can correctly identify the fertile

period of a woman's cycle (Debpuur et al. 1994). Even among literate women, only 9.4% could identify the correct response, “middle of the menstrual period.” This reflects not only a low level of reproductive health knowledge, but a low level of knowledge of the control one could have over their fertility.

The labor value of children. The Kassena-Nankana economy is dominated by subsistence agriculture. More than 90% of the population is engaged in food crop production and livestock rearing. Small-scale industries, and petty trading are secondary economic activities, and their overall importance to family welfare and income is minimal.

The Kassena-Nankana practice both rain-fed and irrigated agriculture (Senah et al. 1994). Rain-fed farming is by far the most widespread and is restricted to the May-September rainy season. Irrigation farming is practiced during the December-March dry season, but only on a limited scale, and confined to a limited area of villages. Technology is traditional, with most production based on handheld hoes and cutlasses. Some mechanization exists, but fewer than one percent of subsistence farmers have access to machinery, in part because capital costs are insurmountable, and in part because dependence on outside maintenance and fuel supplies is unsustainable. The increasingly intense application of traditional technology has diminished soil quality, food security, and nutritional status. Under these adverse circumstances, children represent a principal means for insuring stable yields. Sowing, weeding, harvesting, and processing are typically done manually. Men are responsible for clearing and plowing the land, and women conduct sowing and weeding roles that are mainly seasonal. Children are involved in all stages of the agricultural cycle, however, working alongside their parents and siblings at all times in the agricultural cycle. Boys eventually work on their own small plots of land and these plots are expanded during adolescence, increasing the labor value of sons as they age.

Children are valued for their contribution to farm labor. A family with no children can survive, but a family that lacks grown children must expect to face hardship. Farm production is not mechanized, hiring help is not a practical option, and children thus provide a vital economic resource.

Even in the nonagricultural season child labor is vital to the agricultural economy. Livestock rearing is an important agricultural endeavor in which children play the primary caretaker role. From the age of three or four, boys follow their older brothers in rearing the family's livestock. The very

young are responsible for menial but valued tasks in maintaining livestock such as the collection of termites for feeding poultry or finding fodder for livestock.

Girls also contribute to the household economy, mainly by assisting their mothers with domestic chores. Women supplement their meager earnings from primary farming activities with petty trading in farm produce and household items at the local markets. The production and sale of *pito*, and other activities such as the preparation and sale of ready-to-eat food are also a woman's prerogative, provided that her activities have the permission of her husband and compound head.[7] Girls contribute directly to these activities, and provide indirect support to mothers by fetching water, collecting firewood, and performing household jobs that are normally women's tasks. Most importantly, girls are the primary child care providers, allowing mothers to engage in farming or other activities. Young girls thus diminish the opportunity costs of childbearing by assisting with the child care needs of the extended family.

The security value of children. As is typical with traditional African cultures, the elderly are respected for their knowledge and leadership. Many younger people look ahead to the time when they will be the leaders of the family and the community. The position of compound head is passed patrilineally to the oldest surviving son of the predecessor. The compound head maintains his role as leader of the extended compound family until his death, and is ultimately responsible for all individuals in the compound. His decisions on economic, spiritual, and social issues are final. The elderly are held in high esteem not only for their age and wisdom, but for their formal responsibility for decisionmaking within the extended family and community.

As in settings elsewhere in the region, reproductive intentions are influenced by the perceived net benefit of wealth flowing from child to parent, especially under circumstances of uncertainty (Fapohunda and Todaro 1988). The Kassena-Nankana emphasize the security value of children in times of uncertainty. Adversity in health, agriculture, and the economy underscore the importance of children as a form of economic and social insurance (Caldwell 1976). Children are also viewed as a form of protection against lawlessness. Several respondents referred to a large compound as a "mighty compound" that earns men a measure of respect and security in old age.

The effect of high infant and child mortality on fertility. Child mortality rates in West Africa are the highest of any of the world's lesser developed regions, and mortality in Ghana's Upper East Region is high by West African regional standards (Feacham et al. 1991). High mortality

undoubtedly explains high fertility in traditional African cultures and is prominent in the minds of many of the Kassena-Nankana people (Lloyd and Ivanov 1988).[8] Most people have experienced the death of a child of a compound member and are concerned about the possibility that mortality could occur at any time. Prevalent infectious disease morbidity, severe nutritional adversity, and limited access to health care compound this sense of risk

Fear of losing all children is amplified by concerns about ostracism of the childless. A woman who has no child surviving is branded as useless, because she has nothing to pass on to her family and society. Other family members may view such a woman as irresponsible, contributing in some unknown way to this catastrophe or guilty of some deed that has so angered the ancestors that they have banished her to spiritual oblivion (Caldwell and Caldwell 1987).

Recurring epidemics in the area have further hampered interest in family planning. Several focus group respondents stated that "the white man's medicine" (vaccines) are of unproven value in preventing childhood mortality. The risk of losing all of one's children, although low, is viewed as an unacceptable gamble.

Although the fear of losing children due to illness is prominent, there exists a counter view. Although many share the opinion of the individuals above, others speak of hospitals and medicine now being available to prevent these major sicknesses and people are actually considering having smaller families. But such services are available to the fortunate few who can afford to travel and pay for services.

Conclusion

With so much constraining the introduction of community health and family planning in the Kassena-Nankana District, what has been learned about positive steps that can be taken to design effective services?

First, it should be noted that at least one-third of the individuals interviewed in surveys express preferences for childbearing that are indicative of demand for family planning; "unmet need" is about 24 percent. People are beginning to associate fertility with economic and agricultural problems and are beginning to view fertility reduction as a means of responding to adversity. In focus-group exchanges, some reference is made to successful health interventions and improved survival odds. Although such opinions represent a minority view, and are expressed in the context

of considerable ambivalence about the conclusions reached, it is clear that the process of ideational change has begun in the study area.

Second, although obstacles ingrained in traditional society prevent women from implementing stated preferences, there are ways to work in partnership with communities. Mortality remains high, and fertility regulation is viewed by many discussants as a risky venture that can only be permitted if child mortality risks can be markedly reduced. It is quite important to develop a strong community health orientation to doorstep services.

Third, the Kassena-Nankana people weigh reproductive decisions not as individuals, but as actors in a traditional social system (Young 1976). Women of reproductive age are members of a corporate family in which the will of the spirits and kin has overriding significance, and personal preferences are irrelevant to decisions that must be made. Strategies targeted on addressing individual needs through accessible services will not work unless other elements of the corporate system are also a focus of attention. Focus group sessions indicate that communications and outreach strategies should aim at legitimizing individual decisionmaking through outreach to social groups.

Of particular importance in the outreach process are the reproductive attitudes, preferences, and beliefs of men. A woman practicing family planning runs considerable risk that her behavior will challenge fundamental beliefs about her role in the extended family: offending male kin who arrange her marriage, confronting her husband's family with unacceptable reproductive autonomy, and subjecting her husband to derision among his peers. Secrecy and confidentiality are not only vital to promoting family planning, but are also critical in preventing social discord that could arise in response to the program.

In a setting where pronatalist motives are institutionalized and robust to external influences, the success of family planning program efforts will depend upon formulating culturally appropriate methods of reaching the people in the traditional manner in which information is exchanged. Introducing family planning is not simply a matter of changing the behavior of individuals; rather, success will involve fostering social change. Achieving this will be challenging because the institutions involved in structuring high fertility remain vibrant and strong and the concept of reproductive control remains alien and weak. Fostering reproductive change will depend upon aligning strategies with traditional social organizations and networks and targeting systemic as well as individual influences on reproductive behavior. Implementing programs must combine patience,

rigor, and resolve with a sense of strategic partnership with the communities served. Even a successful effort will achieve results only gradually. Unmet need may exist among individuals, but few individuals view contraceptive decisions as rightfully theirs to make.

Notes

1 Literacy is the proportion of the population aged 15 and older who can read a simple phrase in any language.

2 Living arrangements and related economic relationships can have profound effects on spousal communication, gender roles, and reproductive motives (Caldwell and Caldwell 1987, Lloyd and Desai 1991, Oppong 1987, Abu 1983). Poor spousal communication, in turn, has been shown to impede contraceptive use elsewhere in Ghana (Ezeh 1991, 1992).

3 In societies where women marry very young, there is a likelihood of unequal work burden between sexes, high bridewealth, and low educational attainment of women (Boserup 1985).

4 Similar low occurrences of discussion on family planning topics among a population of Yoruba have been observed in traditional Nigeria (Most and Most 1985). Others have noted this characteristic of the African family in relation to the region more generally.

5 A health study recorded 85 percent animists in the population (Binka et al. 1995a); a demographic survey conducted at the same time recorded 69 percent professing animism (Debpuur et al. 1994).

6 The consequences of religious beliefs on reproductive motives has been noted for traditional societies elsewhere in the region. The implications of religious rites in ensuring many surviving children is associated with living a righteous life and gaining divine approval and approbation of the ancestors (Caldwell and Caldwell 1987). Higher order births are thus a source of joy and cause for special celebration, a common practice among the Kassena-Nankana.

7 Pito is a locally brewed beer made from guinea corn.

8 Binka et al. (1995b) reported that malaria is estimated to be the cause of 20 percent of all deaths among young children.

Chapter 3

Implementing the Project: The Phase I Micropilot

Introduction

Although most systems of traditional governance in northern Ghana have withstood the test of time, the advent of nationhood has generated formal political structures which have blended with the traditional leadership systems (Fortes 1987). For the CHFP to impact on the MOH, it is essential to analyze the structure, mission, and effectiveness of traditional, bureaucratic, and political institutions that must capably interact if the project is to succeed. Three structures were critically examined with the aim of integrating and engaging sectors for promoting effective health service delivery at the community level. This amalgamation of the traditional and formal structures allows the harmonious function of various activities in the society. The effectiveness of the CHFP depends on the extent to which it is able to overlap with each system to ensure unity of purpose, as illustrated in Figure 3.1. This chapter begins with a discussion of the structure and functions of the three district institutions: the traditional system, the MOH structure, and the political system. Next, we discuss mechanisms for mobilizing each institution and explanations of the necessary structural adjustments and operational modifications.

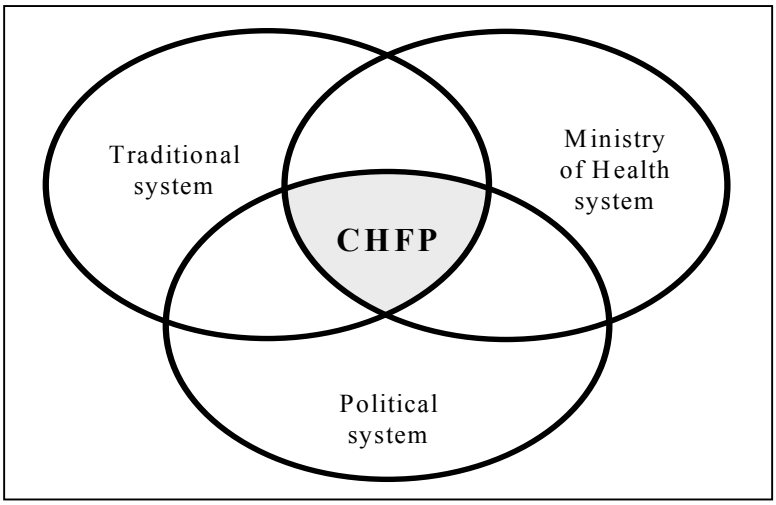


Figure 3.1 Intersection of traditional, Ministry of Health, and political systems

The implementation of the CHFP is described in this chapter in considerable detail. We do not wish to imply, however, that this is a complex task requiring a team of scientists. We believe that a fully staffed DHMT could implement a pilot scheme in six months and scale up operations in a

district in less than a year. The implications of the implementation scheme for scaling up will be discussed in Chapter 8.

Mobilizing the Traditional Authority System

Structure. As Figure 3.2 illustrates, at the apex of the traditional system is the paramount chief, who, supported by his elders, commands authority and respect in all communities. He rules over several divisional chiefs who are also counseled by a bevy of elders who are the custodians of traditional wisdom and practice. These leaders benefit from advice and counsel of the spiritual leaders (*Tigatu/Tindana)*, and ultimately from soothsayers.[1]

Divisional chiefs have under them lineage heads or in some cases, where the lineages are large, sub-chiefs who have authority over compound heads. Village networks exist that have lateral connections which weave the social fabric of the community by joining youth, women, and men together for various social and communal activities.

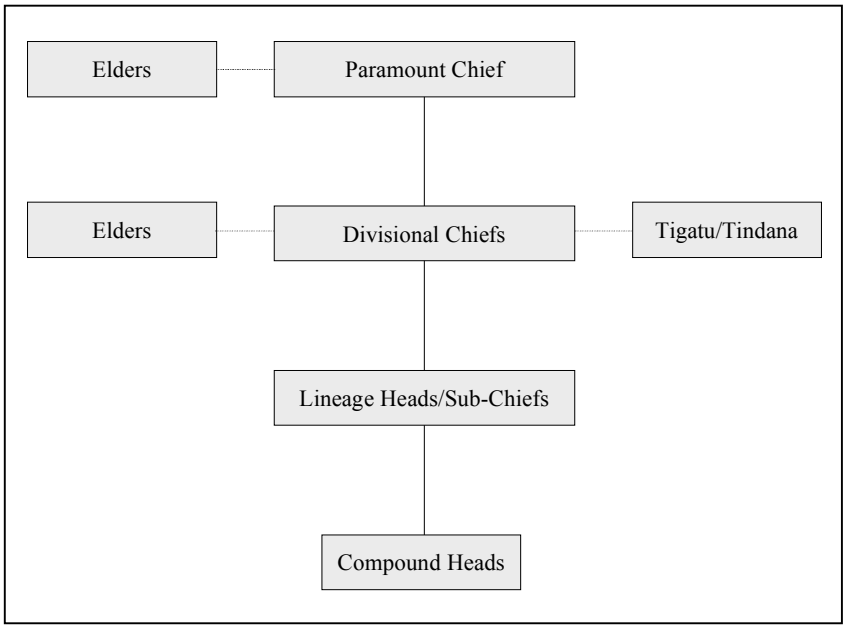


Figure 3.2 Traditional authority structure of Kassena-Nankana society

Chiefs and other leaders could appoint leaders of these networks and assign them tasks for the purpose of executing particular functions. Youth networks (*bia-pe)* exist, and although the name connotes youth in age, *bia-pe* may embrace all who are capable and feel young at heart, and one could belong to many networks. Leaders of these networks are elected on merit and are, to a large extent, apolitical.

Mobilization. Figure 3.2 diagrammed a system of relationships that required attention in mobilizing traditional cultural resources for the CHFP program. As noted in the figure, there is a

hierarchy of chiefs, lineage heads, and compound heads that is well defined in Kassena-Nankana society. “Mobilizing communities” involved generating understanding, organizational preparation, and active communication from this traditional male-dominated hierarchy. Moreover, women are organized into market networks, lending groups, and other informal networks that could be identified, contacted by project workers, and involved in community operations. In addition to this traditional structure, there are *durbars* at the village level that are traditionally used by chiefs to mobilize community action on some issue of common concern to communities. *Durbars* have been a critical component of the *zurugelu* approach, providing an effective means of communicating project messages to communities and establishing the credibility of and community support for project activities. These traditional meetings are used also to mobilize communities to carry out communal labor on farms, put up buildings, and work on development projects. This method was therefore adopted by project staff to develop health services in the localities.

Men are the main decisionmakers in traditional government. If a chief is asked to organize a *durbar* for discussion of any issue, only the chiefs and men are consulted. This happened at the early stages of the project. On health matters however, the Project was of the opinion that women mattered very much; the Project insisted through the chiefs that women should be present at such meetings and allowed to contribute to the discussions. The Project went as far as organizing the women on some occasions.

At the *durbars*, there is usually drumming and dancing with chiefs, sub-chiefs, elders, youth groups, assemblymen and women (formal political leaders) and members of the community in attendance. The *durbar* acts as a forum for the people to have open discussions, ask questions, and make suggestions. Women make the occasion lively with spontaneous health songs arranged from messages derived from *durbar* proceedings.

As depicted by Figure 3.2 the traditional authority structure rests ultimately with the paramount chief, who in turn derives his authority to rule from his divisional chiefs and sub-chiefs. Decisions that affect the day-to-day life of community members must be well understood by the power structure. To initiate the process of consultations, informal discussions were held with knowledgeable individuals in the community about health services to design the first draft of the concept.

After formulating a concept of community-based service delivery, the CHFP approached chiefs and elders for consultation in defining the strategy. The chiefs being aware of the source of their power demanded that the issues be discussed with the people directly. Discussions with the paramount chiefs and elders provides them with foresight and prepares them to intelligently answer any questions from the people, should they be approached. Thereafter, a community-wide meeting—a *durbar*—is convened, usually by the paramount chief. This gives an opportunity for community members to ask questions and have answers clarified. This series of consultations with the various levels of the traditional structure provided legitimacy and transparency to the process. It also enriched the strategy by incorporating views of members of the community from the outset. Table 3.1 details the lessons learned from this series of discussions:

Table 3.1 Deploying nurses to the village: Lessons learned about community entry and involvement

Steps in the deployment process	*Problems encountered*	*Recommendations for CHFP design*
Seeking community involvement and advice.	Community skepticism of "Level B" clinical programs and staff.	• Develop a new community program with community liaison and leadership. • Train CHO in community outreach and diplomacy. • Rename CHN as CHO and reintroduce CHO as new workers through *durbars* and other traditional channels.
Community request for village based clinics and resident paramedics.	Lack of funds.	• Encourage communities to construct "Community Health Compounds" (CHC).
Community concern about health and illness, limited interest in family planning.	Widespread ignorance about family planning, particularly among men.	• Involve chiefs and elders in community education. • Involve men in CHC construction and program promotion. • Focus village communication activities on the needs of men.
	Poor quality of health services that reach the residents in these communities.	• Nurse outreach should focus initially on health problems in the community, gain the trust of the parents, and then introduce family planning topics later.
	Male worries about infidelity; family "ownership" of wives for the purpose of childbearing.	• Convene durbars to explain family planning and bring family planning discussion into the open.
	Communities lack minor resources for traditional durbar refreshments and gifts.	• Modest flexible funds are needed for community liaison activities.

Mobilizing Ministry of Health Operations

Structure. The DHMT is the operational unit of the MOH at the district level. The structure of the DHMT is illustrated in Figure 3.3. It has been the domain of the MOH to plan and manage all health problems of the communities. At the district level, the DHMT is headed by the District Director of Health Services and is supported by a core of program heads from the public health division and curative services. The core public health program heads are the Disease Control Officer, District Public Health Nurse, and a Nutrition Officer. At the hospital level the head is the Senior Medical Officer in Charge of the District Hospital at the facility. Also, under District Director of Health Services' purview are the subdistrict health management teams headed by a Sub-district Head, who is in turn supported by a Midwife, CHN, a Dispensary Technician, Nutrition Assistant, and Disease Control Assistant.

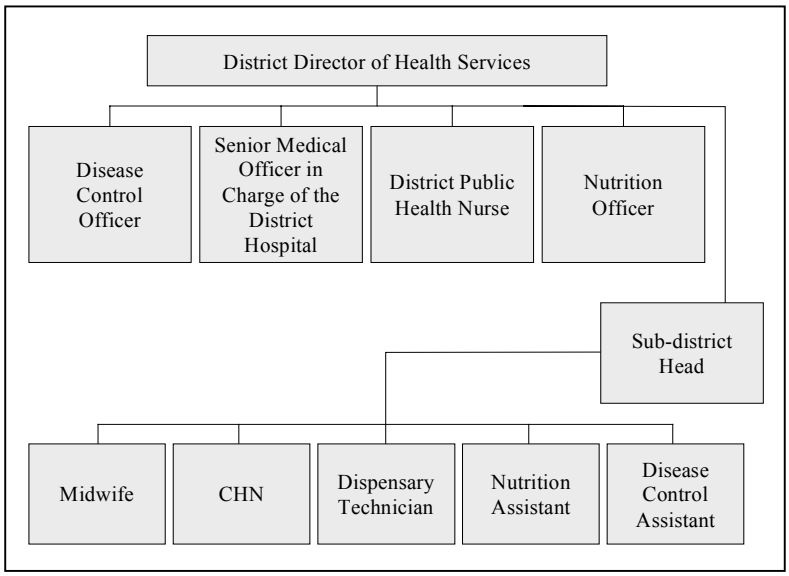


Figure 3.3 Structure of the District Health Management Team, Ministry of Health

This structure links with the district administration through the District Subcommittee on Health, where the DDHS is a member and provides technical advice on health matters. DHMT membership is expanded by inviting other members of the community to the larger DHMT monthly and quarterly meetings to discuss health matters in the district.

Mobilization. The DHMT structure works within the community to a very limited extent, but rarely interacts with it. Its programs are directed by national and regional instructions. The district administration is hardly consulted on programs and the communities are passive beneficiaries of planned activities. To mobilize this structure, the CHFP held a series of meetings with key actors in the Ministry at the district level. These included the District Director of Health Services, the District Public Health Nurse, and other knowledgeable people. After building a consensus with leaders in the MOH community, general meetings were convened with the specific cadre that the proposed

service delivery regimen would target—CHN. At these meetings, discussions were held on how to improve their impact in the communities. They were asked to express their thoughts and ideas about how feasible they thought the proposal was and what it would take to implement.

CHN suggested that they would need a motorbike in order to move around in the community. They also expressed the need for accommodation in the community with adequate water and toilet facilities. To keep in touch with developments around them, and reduce isolation, they felt radios were needed. To enable them to attend to patients, especially during the night and during inclement weather, protective clothes such as raincoats, Wellington boots, and torchlights were suggested.

In addition to such constructive suggestions, CHN also expressed some anxiety and apprehension about the scheme. They felt it could be fruitless posting them into the communities without adequate supervisory support, training, and logistics to accomplish the task. They also feared being posted into these communities and then forgotten. To alleviate this fear and in order to pursue continuing education, CHN suggested a maximum stay of two years in the community after which they should be able to return to the health center. Finally, they suggested the need for some level of compensation. During the course of these meetings CHN were given assurances that their concerns were noted, and that serious efforts would be made to ensure they were addressed. Recommendations from this series of discussions appears in Table 3.2.

Mobilizing the Political Structure

Structure. The third player in the district is the formal political structure—the representation of government at the district level (Figure 3.4). It is headed by the District Chief Executive who is supported by the District Coordinating Director whose main role is to coordinate activities of the 21 decentralized departments including the MOH. Assisting the District Chief Executive and the District Coordinating Director in coordinating the political affairs of the district is the Presiding Member, who convenes formal meetings for District Assembly deliberations. The assemblymen and women supervise and facilitate the functions of the Unit Committees and Town Councils that provide liaison between communities and district assembly programs.

Mobilization. To mobilize the political structure, the CHFP recognized that the political heads of the district have relevant roles to play in the development efforts of all communities and that they are vital for putting development strategies into place to improve health. In all communities

there are functionaries of the political system. Assemblymen and women are responsible for development activity in the communities. They represent the voice and aspirations of the people. The CHFP reckoned with the fact that the community could not be mobilized with-out these important local functionaries.

Table 3.2 Mobilizing clinical resources: Lessons learned

Component of the deployment process	*Problems encountered*	*Recommendations for CHFP design*
Mobilizing existing MOH clinical service resources.	Fixed service point utilization is very low.	• Consult the CHN and their supervisors for advice on what could be done. • Request communities to construct Community Health Compounds (CHC) at community-selected sites.
Reassign nurses to village CHC.	Workers not trained in community outreach.	• Develop household outreach by: ▪ Retraining nurses. ▪ Purchasing motorbikes and training nurses to ride and maintain them. ▪ Organizing a management system for outreach.
	Worker isolation, loneliness.	• Develop support systems involving: ▪ Supervisory support. ▪ Peer support. ▪ Family support. ▪ Community support.
	Workers assigned to CHC object to the loss of amenities.	• Improve the quality of life through: ▪ Village allowance. ▪ Improved CHC conditions
Improve clinical services.	Poor quality of care.	• Quality of care improvement: ▪ Staff retraining. ▪ Nurse performs both curative and preventive services. ▪ Nurse dispenses essential drugs. ▪ Facilities development. ▪ MIS improvement.
	Low utilization of facilities.	• Referral services can be readily improved.
	Overstaffing of fixed facilities.	• Reassigning nurses to CHC does not disrupt clinical services.
Developing logistics support.	Worker isolation; logistics breakdowns.	• Plan routine meetings; regular weekend leave; frequent supervisory visits. • Worker problems can be addressed by developing new MIS according to worker activities and needs. • Standardizing household visitation routines improves community support.

Consultations began with the DCE with the thought that it is better to get the ultimate head to under-stand the issues first before addressing the communities. If the communities are consulted first and they do not clearly comprehend what is being articulated, they will seek clarification, second opinions, and confirmation from their political heads. Many problems that would have later been referred to the research team were resolved via the DCE-level briefing.

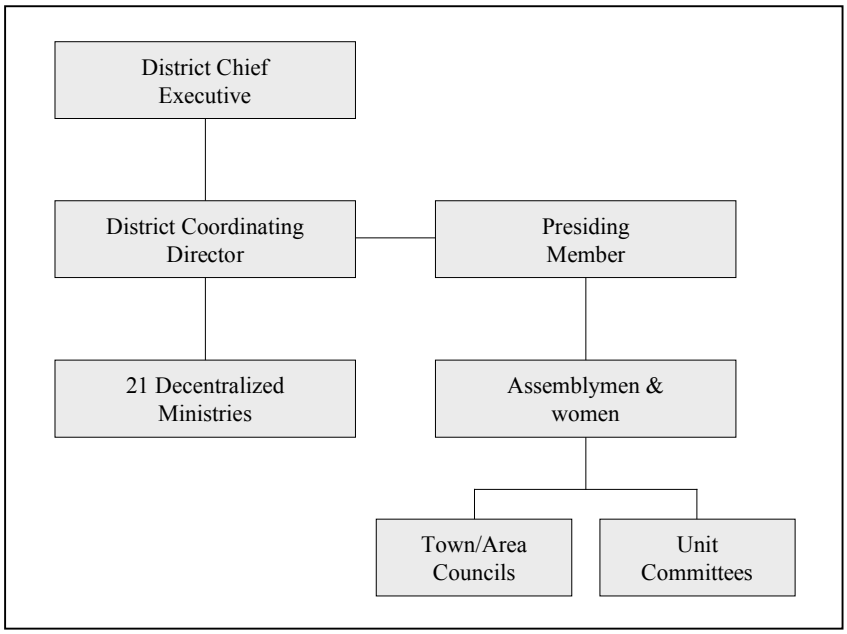


Figure 3.4 The formal political structure

In summary, to mobilize a community to develop community health services requires full understanding by all participants. In the case of the CHFP, these were identified as the traditional structure, the MOH system, and formal political structure. These structures were studied to understand their various roles. They were subsequently mobilized to sustain and support the project. Discussions were held with village leaders about the project. Views expressed in these initial meetings, we believe, are likely to be typical of communities in northern Ghana: Community leaders had not been contacted by the MOH prior to this program; villagers were often indifferent to MOH staff and operations, conveying the view that the primary health care program was oriented to facilities rather than to the people it aimed to serve. Hospitals and health centres have been constructed to provide care, but these structures are underutilized. Most rural people have poor access to transportation; those who have access cannot afford the high cost of services and transportation. The clear message from community exchanges was that the government did not involve communities in the planning and design of the health delivery system. Health and family planning was portrayed as a remote program conceived by others and implemented in distant places. Structures put up by the government have been inadequately used as a consequence; dependence on

traditional medicine continues to be the first line of treatment for illness. Compounds in Kassena-Nankana district are so dispersed that no health center can possibly serve all the people all of the time.[2]

There was clearly a need to improve the responsiveness of the district program to community needs and to begin with a program of fostering community participation. Collectively termed the *Zurugelu* approach, work was directed to the task of marshaling traditional community, MOH, and political resources for the project. This chapter reports actions taken to develop this initiative and to establish essential elements of community participation in the project.

Preliminary Strategic Planning

Posting CHO to villages disrupts their personal lives, changes their work roles, and exposes them to new pressures and challenges. A comprehensive support system is required that involves new approaches to district health services management. Elements of this community-based support system could be designed in advance and refined as the micropilot progressed. This involved developing four domains of system support:

1. **Technical and logistics support**. When CHO were interviewed about factors that hamper their work, the most common issue raised was the conviction that community relocation would be fruitless. In their experience over the immediate past, equipment for travel had been inadequate, fuel was lacking, referral services were not functioning, and so forth. The following elements of technical and logistics support required attention:

    - Logistics planning was needed to assure CHO that village-based services will be supported with requisite transportation, fuel, and supplies.

    - The existing MOH management information system was inadequate for CHFP village work routines. A new system was developed and tested (Nazzar et al. 1995).

    - Work routines must be defined so that a CHO is responsible for a clearly defined population and that compounds are visited in a routine cycle. ***Since injectable contraception is very popular, and the injection cycle is 90 days, the work cycle requires 90 days or less.*** For the District health delivery system to work, there must be an adequate number of CHO in the system. There were 32 CHN, but only 16 were targeted to be redeployed at any particular time. The rest remained to run the health centres. A fully equipped CHO can readily cover 300-500 compounds in three months.

- CHO expressed concerns about the adequacy of accommodation. ***Merely involving communities in CHC construction is insufficient. Guidelines are necessary to insure that CHC have adequate standards of construction and sanitation.*** CHO have become accustomed to the relative comforts of MOH housing; minimal standards must be met to address housing concerns. This involves constructing a facility with an iron sheet roof and cement floors to minimize maintenance, and providing living space that is separate from clinical space. The living space must include a bedroom, a water sealed toilet, a cooking area, and a bathing area (Table 3.3).

    - **Staff rotation and CHO illnesses can disrupt contraceptive use continuity.** Owing to the limited number of CHO assigned to the initiative, there are no back up staff available. **At any time, one full-time CHO should be available for backup support.** CHO illness, annual leave, and transfers have resulted in serious increases in contraceptive dropout rates.

2. **Supervisory support**. Supervisory systems were revised to accommodate the new system of household coverage and outreach services. In the CHFP system, supervisors provide support services for CHO, solving problems that arise and providing them with backstopping on demand. More than simply supervising workers, a "bottom-up supervisory support perspective" is required. ***Achieving supervisory support requires strategic planning for supervisory training, emphasizing problem identification, problem solving, and resource mobilization***.

3. **Peer support.** When CHO are interviewed about their reactions to being assigned to village locations they express concerns about isolation, fear of rejection by the community, and vulnerability to pressures of various sorts. ***Frequent meetings are needed, involving the CHO in sharing their mutual experiences.*** "Peer support" refers the need to make workers aware of mutual problems, and the importance of working together on possible solutions.

4. **Social support.** In the past, MOH services were detached from the community and CHO lived in clinics isolated physically from communities. Two critical problems for CHO require attention in this program:

    - **Community support**. Posting CHO to villages requires support for the program among chiefs and lineage heads. This is necessary for any program that posts workers to traditional communities. ***Building "community support" for CHO requires more than liaison with community leaders. Effective support requires continuous promotional activities in durbars designed to build CHO credibility and acceptance in the community where she is based.***

    - **Familial support.** Reposting CHO to village locations removes them from their established residence at MOH facilities where they have been based. Husbands and children have remained in the staff housing, isolating CHO from their families. ***Recognizing the role of husbands in this scheme has been important to its success.*** Leave policies, vehicle policies, and other elements of flexibility are needed that respect the need for CHO to see their families frequently.

Table 3.3 Constructing Community Health Compounds (CHC): Lessons learned

Component of the service development process	*Problems encountered*	*Recommendations for CHFP design*
Approaching communities to plan CHC construction.	***Unrealistic expectations:*** Communities expect external assistance for constructing a modern clinical complex.	• Construction plans and resources; need for a program with modest resources for: ▪ tin roofs ▪ bitumin (for stabilizing walls), ▪ wood frames for windows and doors, ▪ cement for floors, ▪ latrine seals, and ▪ basic furniture and equipment.
	The project expected communities to donate construction resources plus labor.	• Communities will donate labor for construction of: ▪ a two-room laterite residence-clinic, ▪ a perimeter wall, ▪ a bath area-kitchen area, and a latrine pit.
	Communities lack experience in planning a public health facility.	There is a need for a simple floor plan or demonstration site illustrating the minimal requirement.
CHC location.	Shared accommodation may not be appropriate for family planning services: • Patient privacy is of paramount importance; • CHO require autonomy.	Invite communities to select sites for a separate traditional compound near markets, roads, public wells or other convenient locations; CHC should not be in the chief's compound, attached to other compounds, or linked to schools or other public facilities.
Constructing CHC.	Some communities lack committed chiefs—leading to organizational problems and long construction delays.	If chiefs do not respond to the initiative, respected educated citizens will organize youth leaders (*bia pe*) to volunteer labor with chiefs assuming an honorary and symbolic role. This approach requires extensive project organizational involvement, however.
	Communities sometimes omit key compound components such as the perimeter wall, floors, or latrines.	Traditional compounds often lack essential amenities. The CHC program must emphasize all aspects of a completed CHC and organize complete construction.
	Communities will sometimes cut costs in ways that make facilities unliveable.	Wall height and thickness, wood quality, latrine type, roof type, etc. constitute crucial construction details that must not be compromised to save construction costs or construction time.
Maintaining CHC.	Traditional compounds are laborious to maintain. According to tradition, women are expected to plaster walls and repair roofs. Village women lack time for CHC maintenance; CHO do not have time for such chores; men do not donate time for maintenance.	• Purely traditional construction does not work: ▪ iron sheet is needed for roof construction; thatch or laterite requires too much labor to maintain. ▪ Cement is needed for floors to prevent water damage; ▪ Bitumin is needed to stabilize walls.

Preliminary planning was thus directed to building a system of support for concerted action at the periphery. These plans included holding *durbars* with the chiefs and people, consulting with the men and women, and conducting focus-group studies to find out the communities' reactions to project activities. Many of the operational details of this support system were developed gradually in the course of the micropilot. From the outset, however, preliminary plans were put in place to respond to workers concerns about isolation, lack of support, and risk. Support visits were twice weekly, zonal meetings brought CHO together to provide an opportunity for them to learn from each other's experiences in the field. Since demand for family planning is weak, and traditional social support for fertility regulation is fragile at best, operational planning was required that strengthened social support for the new role that outreach workers were being assigned.

The Micropilot

The preliminary strategic planning did as well in structuring on paper or in theory what was possible. But the operational design still had many uncertainties. There were many unanswered questions such as:

- Is the design feasible?
- Can a volunteer support system be established?
- What support systems can the community provide?
- Will the nurse live in the community?
- What training does she need to function effectively?
- Will the community accept her?
- What is a viable work routine for her?
- Can the DHMT supervise the worker in the community?
- Can worker-oriented MIS be developed and used?

To provide answers to these questions and to ensure that relevant lessons went into the design of the eventual full experiment, a micropilot was designed. Three villages were chosen for a detailed study on operationalizing the design. Two were chosen because they were far enough away to ensure that lessons learned would be relevant to an actual implementation strategy. If lessons can be learned from the micropilot on how to supervise service delivery at great distances, it would be much easier to do the same in nearby communities. Kayoro and Naga were the two distant communities, and Kologo was chosen as a nearby community.

Implementing Technical Training

Although all MOH personnel in Kassena-Nankana District have been trained to provide basic health and family planning services, few CHO had actual field experience in visiting compounds to generate interest in the services. It was therefore apparent that worker retraining was needed, first to provide retraining on technical issues to be addressed, and secondly to emphasize the new model for services proposed for the Navrongo area. A training syllabus was designed to reorient the CHO for the micropilot, and to serve as a prototype syllabus for eventual use in training all CHO in the district. Various lessons emerged from this training program. The first week of training focused on a review of the preventive sections of the CHN pre-service training syllabus; the second week looked at family planning and counseling. The third week was used to teach management of leading medical conditions such as malaria, diarrhoea, ARI, and the fourth week introduced participants to the use of the NDSS in service delivery. The lessons from this experience are clear:

- **Frequent short practical training sessions are preferable to longer-term and irregular formal sessions.** The project emphasizes practical on-the-job experiential training, offered in short and intense sessions that solve problems. In this way, resolving problems experienced by one worker upgrades technical capacities of the team as a whole.

- **Training should focus on community entry, diplomacy, and community organization.** Existing CHN training programs of the MOH focus on technical issues in primary health care and family planning. While this technical focus is needed, there is also a need to train outreach nurses in the diplomacy of village work.

- **Ancillary training is often needed.** Most nurses do not know how to ride a motorbike. Training in motorcycle riding and maintenance is needed. Many nurses do not speak the language of the locality where they are assigned. ***For these reasons, it is important to be flexible in designing training so that the special training needs of individual nurses is respected. Too often, training is designed as a district-wide program whereby every worker receives the same orientation. A more flexible and tailored approach is needed.***

Designing the MIS and Field Supervision Systems

The existing MIS system was not designed to support operational management decisionmaking for community-based services. A new approach to MIS was developed that embraces a "worker's perspective". Information is designed to develop team work and cohesion. MIS was designed by assessing the minimal data requirements as described by primary workers, their supervisors, and the DHMT staff. The following lessons emerged from this planning process (Table 3.4):

- **Orient MIS data to primary work routines rather than to information that officials need.** Workers need to know if coverage objectives are being achieved, if the population served is responding to services, if basic support functions for the field operations are functioning smoothly so that logistics and supply operations are adequately supporting field operations, and if problems that hamper operations are being solved. ***MIS for village-based community health services requires careful attention to "bottom-up" communication: Mechanisms were developed for workers to meet frequently, assemble narrative reports, discuss progress and problems, and communicate matters of concern to senior officers.***

Table 3.4 Management, training, and supervision: Lessons learned

Program component	*Problems encountered*	*Recommendations for CHFP design*
MIS	Information is extracted from workers rather than used to support routine tasks.	MIS can be developed to support worker tasks and activities.
	No feedback exists.	Feedback system developed.
	Supervisors do not use MIS for field support.	An MIS-based supervisory system can be developed involving regular field staff meetings and problem solving.
Training	Data is often poorly managed.	Training is welcomed and viewed as an incentive by workers.
	Training is clinical; problems are community health service related.	Focus shifted to community organization.
	Training is infrequent.	Implement continuous task oriented training.
Supervision	Supervisors lack transportation or fuel.	Provide reliable access to fuel and transportation.
	Supervisors lack information about field problems.	Develop work system for generating performance information and supervisory work routines.

- **Orient work routines to client needs.** Outreach in Navrongo is designed to reach every compound in the study area every 90 days with basic health and family planning services. Women indicate a strong preference for injectable contraceptives. The product available, DMPA, requires a 90-day injection cycle.

- **Organize staff meetings to utilize MIS.** The work routine calls for a monthly "zonal meeting" of all CHO in an area and a quarterly meeting to summarize progress and MIS reports on problems and progress. At zonal meetings, each worker summarizes the key issues arising in the current round of activity. Emphasis is placed on narrative reporting and problem solving. Meetings lead to a supervisor's report summarizing key issues raised and actions required by the DHMT. Reference is also made to the CHO registers and current tallies of the number of compounds covered and women encountered, special problems addressed, and unresolved problems. Particular attention is accorded to barriers in sustaining the planned coverage regimen, diplomatic problems requiring intervention, and special follow-up needs of men requiring the attention of male supervisory staff.

- **Design MIS to support field routines.** Each CHO is provided with a register that is arrayed by mothers and children (rows) with columns for each compound visitation round, and spaces

provided for each visit round. Simple codes are entered for the reproductive, family planning, and health status of mothers, and immunization and health service indicators for their under-five children (See Nazzar et al. 1995).[3] Information required for the register are names and ages of women of reproductive age and their children. Other information that is helpful to CHO can be compiled in subsequent rounds of compound visitation: Tetanus vaccination data for mothers, EPI status data for children, numbers of pregnancies, live births, number of children who have died, date of last live birth, and survival status of last live birth.

- **Routine CHO field activities provide valuable insights into management needs.** Pilot field activity has been useful in planning the management requirements of village-based CHO operations (Table 3.5). If this program is extended to other districts, a small-scale pilot trial is recommended so that management systems can be developed locally.

Table 3.5 Deploying nurses to the village: Lessons learned about routine village work

Component of the deployment process	*Problems encountered*	*Recommendations for CHFP design*
Transportation for compound-based services.	Compounds are dispersed, villages are remote.	Motorbikes are essential.
	Nurses are not trained to ride motorbikes.	Motorbike training is crucial to starting the program.
	Villages lack maintenance or fuel facilities.	Organizing maintenance is essential on a monthly basis.
	Obtaining fuel can be time consuming.	Provide fuel in supervisory visits.
Contact with clients.	Secrecy is important to women.	Involve men in Project activities.
Culturally sensitive outreach to women.	When CHO are changed, users sometimes deny use when visited by the new worker.	• Rotating workers can lead to discontinuation. • Incoming nurse should overlap with outgoing nurse.
Open and intensive promotion of family planning among men.	Women adopt in secret for fear of ostracism or violence if contraceptive use is known by husbands or kin.	Durbars and outreach to men is required to prevent social discord. This involves: • legitimizing family planning through chiefs, elders, and lineage heads. • promoting family planning through male networks; • responding to problems that women experience with intensive outreach to offending men.
Services at CHC.	Distances to "Level B" clinics make services inaccessible. Communities request ambulance services, emergency obstetric care, and other ambulatory care exceeding the technical competence of resident CHO.	• CHC caseloads are high; the CHC concept is popular. • Community durbars must educate the public on what CHO can do as well as services that CHO are not competent to perform.

Elements of System Support

Posting CHO to villages. Placing CHO in village locations requires system support for logistics needs, routine work rounds, community diplomacy, and community education:

- **Support the allocation and use of motorbikes.** CHO require training in motorbike use and maintenance. Villages lack mechanics or petrol pumps. There is a need to anticipate logistic support requirements of motorbike operation.

- **Support routine visitation rounds.** CHO require support for establishing routine visitation operations so that clients know when to expect visits. The credibility of the pilot program was linked to its capacity to deliver services in a manner promised to communities.

- **Respond to social discord.** In the pilot project, extraordinary care was taken to involve male leaders and assure men that family planning services are a normal and appropriate component of primary health care. In rare instances, however, social disturbances arose because of contraceptive adoption. ***It is important to anticipate social discord, and constitute a team of respected men who can respond to problems with community action and diplomacy.***

- **Clarify the range and content of CHC services.** Villagers respect CHO as their community "doctors." This can lead to problems when emergencies arise that require referral and tertiary care. In the pilot program, it was important to educate the community on the range of services to be provided at the CHC and to emphasize the importance of referral services and the appropriate role of "Level B" and "C" facilities.

Client-Provider Interaction

Figure 3.5 shows the pattern of contraceptive uptake in the three micropilot villages of Kayoro, Kologo, and Naga. Both Kayoro and Naga show a steady but gradual rise in prevalence rates for the very first five rounds. Kologo on the other hand shows a very slow start. Kologo is a very densely populated community with many sections. It took the nurse more than the stipulated 90 days to cover all the compounds in one round. It took her some time to get used to the heavy routine. Once she picked up, her acceptor rate rose gradually like Kayoro and Naga. Naga had a population just under 2,500 and Kayoro just above 2,500 people. Salient features of Figure 3.5 are:

- Contraceptive use was very low in the baseline and increased monotonically in all three villages to about 8 percent by July 1995.

- After July 1995, three contrasting trends were evident: Use markedly declined in Kayoro, flattened to a plateau in Kologo, and continued to increase in Naga.

- In all three villages, contraceptive use declined markedly over the July-October 1996 period and increased subsequently.

- At any point in time use has been lowest in Kologo, somewhat higher in Kayoro, and highest in Naga.

At around the sixth round in Kayoro, acceptor rates started to decline. This demonstrates the fragile nature of the demand in the communities. Service delivery depended heavily on the presence in the community of the service provider, the CHO. At around this time the CHO was pregnant and therefore could not move around and canvass the compounds as vigorously as she used to. Contact rate with the community members reduced as she subsequently went on maternity leave. Coincidentally, at around this time, the project was trying to scale up. Clinic based staff perceived this new service delivery scheme as more work than they were used to and embarked on an industrial action to delay their redeployment into the communities. This was resolved diplomatically and the striking staff soon went back to work. Only then could we find a replacement for the Kayoro CHO. In subsequent round, acceptor rate increased as can be seen from the charts.

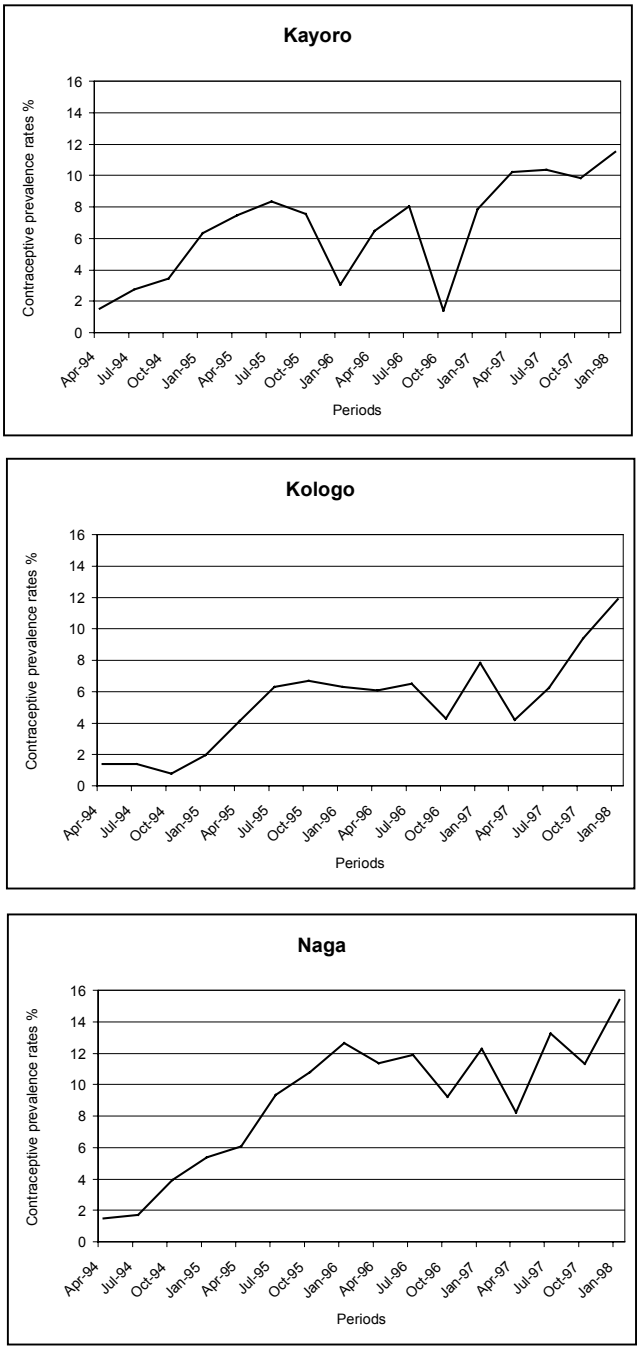


Figure 3.5 Contraceptive prevalence trends for micropilot villages, April 94-January 98

Common to all three micropilot villages is the evidence of a plateau soon after the resolution of the nurses' strike. As the number of acceptors grew larger, managing the task of providing the follow up injections became onerous. This apparent plateau was discussed with the CHO and a work schedule was devised with times allotted to the completion of each register that helped the supervisors to remind CHO to keep to time schedules in completing

these registers. This improved their recruitment of new acceptors and their retention of old ones. Subsequently, the acceptor rate increased again. Dips indicated periods when district assignments such as taking part in the management of an epidemic outbreak such as cerebro-spinal meningitis, yellow fever, took them away from their communities. There were also times when a CHO had to go on leave and there was no spare CHO to take over from her and the community had to stay without a resident CHO.

The most important single conclusion to emerge from the provision of community-based services in the micropilot is reflected by the data in the Figure 3.5 time series of MIS reports on contraceptive current users as a ratio to all women of reproductive age:

- **Compound-to-compound service delivery can introduce family planning in rural communities.** ***When services are offered, a steady but gradual uptake of contraception occurs. This suggests that demand for family planning exists, and that reproductive behavior will change if convenient services are offered to women in their homes.***

- **Dropouts become a serious problem if services are disrupted.** As Figure 3.5 shows, contraceptive use has increased in all three pilot CHO over time for the period of operations. Only 2 out of 2,851 women ages 15 to 49 were contraceptive users at the start of the micropilot (0.1 percent); 295 were current users at the end of round sixteen (10.3 percent). Various factors led to a disruption in the provision of services. ***Just as contact with CHO leads to adoption, disruption in contact with CHO leads to discontinuation.*** Very careful attention must be directed to sustaining the pace and quality of contact once an outreach program is launched.

  Other pertinent observations from the micropilot are:

  - **Injectable contraception is preferred over other methods.** Although a wide range of methods are available, more than 90 percent of current users are injectable clients. ***Household distribution of the injectable method DMPA fulfills a demand for injectable contraception that was not met in the past by the clinical service program***. Very significant demand for family planning might be met by village-based DMPA services.

  - **The "trusted outsider."** The end-of-pilot prevalence in Kayoro village was 9 percent versus 3 percent in Kologo. In Kologo, the CHO was the wife of the paramount chief and resident in her husband's compound. Indepth interviews show that Kologo villagers were reluctant to accept family planning from a CHO who resides in the chief's compound. Concerns about confidentiality indicate the CHC should be separated from chief's compounds and that CHO should not be members of the communities they serve. ***Villagers value the respect that CHO extend to their chiefs and elders; they consign considerable importance to a close liaison between the CHO and the community—but they also value an element of social distance between service providers and the community. Locating the CHC in shared compounds does not work.*** A socially wired CHO is potentially threatening to a couple who view family

planning acceptance as something that is socially risky; a trusted outsider who lives separate from community elites is a safer source of information and service.

- **The importance of contact.** The prevalence increase depicted in Figure 3.5 is modest for studies of this complexity. It is important to note, however, that the mobility of women is severely constrained by economic and social factors; dependence on the outreach system is great. ***If means could be found to increase the contact rate, acceptance rates would be higher.*** Other factors are also important determinants of contraceptive use, but this implication of the trial has been noted and merits further investigation. Women indicate a reluctance to adopt family planning services provided in group settings, but expect information to be provided in the open to familial or social groups. Means of increasing service exposure by reaching women in groups merit investigation and trial.

    - **The importance of reaching men.** An unanticipated finding from the micropilot is the willingness of men to discuss family planning with CHO, who are women. Women can serve quite effectively as information providers to men, so long as strict secrecy about the contraceptive decisions of wives is maintained at all times. A recurrent theme in focus group sessions is the general acceptance of the role of CHO, even among men who express concerns about family planning. This acceptance of the CHO among men, however, does little to obviate the need for a more general strategy for reaching out to men. This, we believe, will be the contribution of the *zurugelu* dimension.

Lessons from Mobilizing Communities for CHC Construction

Once a CHC was completed, a *durbar* was held to celebrate its completion and to launch services. Various problems (Table 3.6) and lessons emerged from the micropilot program of community action for CHC construction:

- **Communities will construct CHC, but the appropriate timing of community action is crucial to success.** Fostering community action in CHC construction requires a *durbar* for explaining the construction plan, soliciting assistance, and celebrating the MOH decision to post a CHO to the village in question. ***Construction is simple and rapid, but delays can be problematic if work is attempted in planting or harvest seasons when labor is in short supply.***

- **A CHC initiative based entirely on traditional construction methods and donated materials is not sustainable.** Traditional compounds are built by men; routine maintenance is considered women's work. CHO and village women are too busy with their daily work to perform maintenance. Laterite roofs soon begin to leak, causing structural problems during the rainy season. Because mud walls and roofs are heavy, weakened structures can be dangerous. The original appeal of "traditional construction" was the notion that low-cost donated housing would be sustainable. ***In fact, a purely traditional design for construction is not sustainable because traditional housing requires sustained family maintenance work.*** A sustainable CHC has an iron sheet roof, cement veneered floors and courtyards, and secure wooden shutters and doors.

- **Fundraising for CHC construction can be problematic.** Delays in CHC construction arise when funds must be raised. Conflict, political disputes, and other community problems become evident when resources must be raised. ***Just as CHO services and motorbikes are provided by the MOH, key construction supplies should be provided to communities that donate labor for a basic CHC structure.***

- **The CHC initiative contributes to more general community awareness and ownership of the initiative.** After the CHC has been constructed, the CHO is oriented to the community and a *durbar* is scheduled to celebrate the launching of services. The event is designed to build understanding about the role of the CHO and community commitment to her presence. Health and family planning is discussed, but the main objective has been to put into place the elements of supervisory, community, and political support for the outreach team. ***CHC construction is a defining event that crystallizes collective action. CHC construction delays signal underlying community organizational problems that require program understanding and diplomacy.***

- **Communities welcome and accept compound-based services.** The central contribution of the CHO scheme is the capacity of the MOH to deliver a credible package of services to women in the privacy of their homes. Men could not do this; open meetings or outreach clinics cannot achieve this; no other approach could be suggested by communities that would substitute for personal exchanges between a trusted female paramedic and married women in their homes. This dependence on house-to-house encounters represents a major strategic burden on the program, because home visits, at 90-day intervals, are fewer than women feel is optimal. Given the geography of the locality and the low density of MOH staff for this activity, it is not possible to accelerate the pace of outreach. ***It is evident, nonetheless, that the project could achieve more in the initial stages, if the intensity of household visitation cycles could be increased.***

- **Outreach to groups and establishing rapport is appropriate in the early stages of *program* introduction**. Initial discussion of contraception with individuals is less effective than a gradual approach that begins with contacts to the extended family about health issues followed by a dialogue with husbands about family planning. Once these contacts are established, exchanges with women about their health concerns and family planning needs can proceed. ***Effective CHO thus begin outreach encounters by building their credibility with the compound power structure—husbands, compound heads, and elders, while at the same time being a trusted confident of individual women.*** Building rapport in this fashion often takes several outreach visits before the stage is set for family planning.

- **Work routines should be known in the community so that men and women know when to expect a CHO visit.** A woman is more likely to consider adopting family planning more seriously if she has confidence that she will be visited again in the future by someone who remembers what they have discussed. MIS is appropriately designed to provide simple information for guiding exchanges, and reminding a CHO of issues that arose in past encounters. For this reason, a population register system is much more effective for MIS than a loose paper system.

- **The CHO visitation *program* is effective and efficient. *A single CHO equipped with a motorbike and a packet of essential drugs provides more services than an entire Level B clinic at a fraction of the cost.*** The purchase of equipment for CHO should not be dismissed as an unaffordable investment. It is far more effective to equip workers to be active community service providers than to pay them to sit idle in clinics.

Table 3.6 Problems encountered with implementing the CHFP: The nurse outreach component

Communities (CHFP cell)	***Problems encountered***	*Solution*
Kayoro (II)	Traditional CHC construction with maintenance problems; communities do not provide latrines; traditional construction is not sustainable.	Redesign CHC with tin roof; encourage district assembly to provide supplemental funds for tin roofs; involve district development program in CHC latrine installation.
Kologo (III)	CHO socially well connected and CHC was developed inside the paramount Chief's compound. Villagers refused to utilize facility owing to concerns about confidentiality.	Use the "Trusted Outsider Approach:" Kologo CHO transferred out, outsider CHO transferred in, CHC constructed outside the Chief's compound.
Naga (III)	The Chief who mobilized support for the CHFP died, leaving weak leadership to support project activities.	Frequent contact with the communities; direct liaison with the community on mobilization activities.
	CHO offered shared accommodation at CHC. Compound members interfered with her work.	Build separate, stand-alone CHC for CHO.

Launching Project Durbars

Much of the discussion in initial project durbars focused on resources. Communities wanted to know what project activities would cost, whether they would have to pay, and what would be provided for free. It was made clear that CHO were government workers and that the community would not have to pay consultation fees. However, drugs issued would have to be paid for at affordable prices, and communities would be responsible for any compensation to be awarded to YZ. Issues concerning the design of the project and the model of service delivery relevant to the rural community were extensively discussed.

The issue of accommodation for the health worker was also discussed. Project staff assumed communities would provide housing for CHO. Although half of the communities did so, in half this was not the case, even with repeated staff visits to the communities. Community members gave various reasons to explain their failure to construct a house for the CHO, such as time constraints from other commitments and demands of their own farm work, and the fact that they could not

procure materials like iron sheets or nails. We obviously did not grasp the essence of the traditional practice of *zurugelu* that we tried to adapt to the program. Traditionally, any member of the community could call for help from his neighbors on the farm or with building a house through communal labor. This beneficiary provided food and drink and a convivial atmosphere at the end of the day to his benefactors. The project had to learn from this philosophy much later on. On community projects however, it was difficult to point out "real owners" at the very beginning. Who was to provide this conviviality thus became an important variable in making the decision to execute a communal activity. As the project learned this and faciliated this decision, communal activities became much easier to execute.

It became clear, therefore, that patience, persuasion, and collective community action through its mobilization would be necessary to get the CHC built. It is also necessary to involve other institutions and individuals who would support community-initiated programs.

Project *durbars* were effective means of gauging male reactions to the initiative. In initial *durbars*, men often expressed concern that family planning would liberate women. Spousal mistrust is widespread, and men were concerned that infidelity would become rampant if family planning were widely practiced. This issue was openly discussed and debated and men began to understand the rationale and purpose of family planning.

Developing the *Yezura Zenna* Program

For two decades, the MOH has had policies promoting programs through volunteer workers.[4] Reviews of this program have indicated varying results ranging from absolute failure to some degree of success. The Ministry was of the opinion that volunteer Village Health Worker (VHW) schemes had not done well and demanded that this project experiment on a new volunteer scheme to determine if this policy could be implemented. In the course of Phase I, a new type of volunteer scheme was developed that addressed problems with the VHW approach. Navrongo volunteer workers are known locally as *Yezura Zenna (YZ)* or health aides. YZ are men and women who are recruited by chiefs and elders on the basis of their commitment to community work. They are viewed as members of the community who can be trusted to keep secrets, carry out work under supervision of the Yezura Nakwa (YN), and maintain commitments. As the sole service providers in the

zurugelu system, YZ provide a key link between YN and the traditional system of government, the unit committees, and networks. Various steps are involved in the selection of YZ:

- Program officers first visit the chief and elders to discuss the concept of the CHFP project. A dialogue ensues where options to improve service delivery are discussed. Eventually a consensus is reached that young people should be selected from the community to be trained by the MOH to provide basic health care services in the community.

- The chief agrees but insists that the meeting be reconvened with his elders and sub-chiefs. This is agreed upon and a time is set for the meeting.

- A third meeting is organized when candidate YZ have been selected and a *durbar* organized. At this *durbar*, the YZ are presented to the gathering and their suitability is either sanctioned or not by the gathering.

- If confirmed at the gathering, the candidate YZ is then accepted for two weeks of training.

- After training, a *durbar* is organized to present the qualified YZ to the gathering again. At this *durbar*, the rules and regulations about the YZ are spelled out openly. The YZ is not to give injections; he has not been trained to do so. No one should allow him to give injections. He will be supervised by the YN. His drugs will be kept by the YN and given to him in small amounts. He must account for previous drugs before new ones are issued. There will be a quarterly training session for the YZ. He will be given a bicycle for his work.

- The YZ equipment is given to the chief and elders, to be given to the YN and finally to the YZ. This ensures that he knows the line of authority in the community.

- The MOH will provide technical supervision on a bi-weekly basis ensuring quality of care, while the YN are responsible for administrative supervision.

The concept of volunteer participation in primary health care has been discredited by the failure of previous initiatives. The *zurugelu* approach differs from previous methods in that *systemic* limitations of volunteer strategies have been reviewed and new program components developed to deal with these potential pitfalls (Table 3.7). As a result, the *zurugelu* system for volunteerism is quite fundamentally different from previous approaches. The YZ new concept differs from that of the former VHW program in several important respects. These are summarized in Table 3.8.

Table 3.7 Problems encountered with implementing the CHFP *Zurugelu* component

Communities (CHFP cell)	*Problems encountered*	*Solution*
Kologo (III)	Community concerns arising from the experience that disbanded the VHW initiative. In the past, VHW services were associated with misuse of pharmaceuticals, causing fatalities in some instances.	Reassure community at durbars and spell out capabilities and the limitations of the YZ; monitor YZ quality of care.
	FP clients preferred to visit the YZ rather than the CHO, because CHO was living in the chief's palace.	Build separate CHC, and bring in an outsider CHO (one that does not come from community).
Pinda (I)	Small community; smooth implementation; no problems.	In small communities where leadership is united, volunteerism works well.
Gwaru (I) Kakungu (I)	Influential chief; cooperative community; no problems.	

Table 3.8 A comparison of program characteristics of the former Village Health Worker Scheme and the experimental *Zurugelu* approach

Program characteristic	*Village Health Worker scheme*	*Zurugelu approach*
Health service activities.	• Primary health care. • Pharmaceutical sales. • Illicit antibiotic injection sales.	• Primary health care; essential drug dispensing. • Health education. • Community health organization. • Primary health care referral.
Recruitment.	MOH in consultation with chiefs.	Yezura Nakwa in consultation with chiefs and MOH.
Accountability.	None specified.	Yezura Nakwa in consultation with chiefs and CHO.
Technical supervision.	None specified.	CHO and the "Level B" staff.
Administrative supervision.	None.	Yezura Nakwa in consultation with CHO & chiefs.
Compensation.	Profit from drug sales.	• Bicycle use. • Community recognition. • *Yezura Nakwa*-based compensation.
Task and service regimen.	Sales of essential drugs only.	• Essential drug dispensing. • Health education. • Family planning education and CBD. • Health liaison.
Training.	Two-week initial training, village based, once only.	Two-week initial training; continuous follow-up training (one week every quarter).
	No community-based supervisory structure.	YN training (2 days every quarter).
Task development.	None.	Step by step incremental development of service regimen.
Gender mix.	Men only.	Men and women.
Mobility.	None.	Bicycle and spare parts provided.
MIS.	None.	Registers with symbols and checklists.
Institutional link.	Ministry of Health District Health Management Team (Bureaucratic system).	Traditional leadership system (*Zurugelu* system) + MOH.
Coverage.	Services on demand. Individual client oriented.	• Active outreach. • Group and network focused.

Various lessons have emerged from experience with developing the *zurugelu* system that merit consideration in the national community health program:

- **YZ should be selected by communities, not by the MOH.** An effective volunteer is chosen by the people to be served by the program.

- **Managing a volunteer program poses new organizational and management challenges.** Two streams of supervision are needed—one from the community assuring that work is actually done, and one from the Ministry, insuring that the appropriate types of health and family planning services are provided and that technical competence of the YZ is maintained at a high level. In the VHW system, no attention was directed to supervision.

- **Careful attention to logistics is required.** Regular supervisory visits to YN are required to replenish supplies. They must be equipped with a wooden box, notebooks, haversack, pens, pencils, etc.

- **Explicit attention must be directed to securing sufficient incentives for YZ.** YZ cannot be productive without some form of transportation. Bicycles are provided to YZ. This represents a major incentive to join the program, and provides essential mobility. Efforts must be directed to extending community recognition to YZ at every opportunity. Possession of a mode of transportation assures this recognition and prestige; both represent a form of compensation. The scheme for pricing, cost recovery, and compensation is set by the YN, with allowance made for disbursements to YZ. In the VHW scheme, drugs were peddled, and all resupply links were commercial and commercially motivated. In the YZ approach, the MOH provides drugs at cost, and YZ are not allowed to dispense commercial drugs so that all pharmaceuticals distributed by YZ are linked to training programs, insuring safety and quality.

- **Extensive training is essential; training must be continuous.** As Table 3.7 notes, the YZ service delivery role is somewhat broader than the VHW service approach. In order to intensify the active outreach process, YZ workers are recruited and trained in primary health care service and referral to include selected aspects of reproductive health and family planning. Their role involves treatment of minor ailments, ambulatory care for certain illnesses such as malaria, and diarrhoeal disease rehydration therapy. YZ also refer clients to CHO and clinics, and can resupply condom and pill users. YZ provide information and education within villages and compounds, and organizing *durbars* and other community meetings.

- **Strict technical supervision of YZ is a continuing challenge.** It is clear that YZ could readily abuse their credibility if the wrong drugs, such as antibiotics, were available to them, or if inadequate training were provided for the drugs on hand. In fact, this was the experience with the defunct unsupervised VHW scheme. For this reason, the project has instituted strict controls over essential drugs, and careful monitoring of the YN function in drug distribution.

- **The YZ program works best where it can be coordinated with the CHO village service program.** Where both CHO and YZ are functioning, a working partnership has developed

concerning male roles in family planning, promotional activities directed to male networks, and other issues concerning village diplomacy that men are positioned in society to address. CHO have thus learned to view their relationship with YZ as complementary. Volunteer services can work, but major organizational effort is required from the MOH.

The Navrongo project has demonstrated that volunteerism can be an important resource to the MOH. Instituting a volunteer cadre, however, should not be interpreted as a cost-free program that is simple to organize and manage. Considerable effort must be directed to volunteer training, supervision, and organizational work. Careful liaison with communities is required to develop community management systems. This, in turn, requires training for community health committees and careful operational planning. DHMT must be trained in community organizational skills that are presently lacking. Supervisory teams must be equipped to conduct this program. In general, schemes that require community resources, such as volunteer programs, also require extraordinarily careful field management and organizational effort.

Implications of Problems Unresolved after Phase I

Three broad classes of problems have arisen in the course of this trial that would have been difficult to resolve in the absence of an experimental program. Policy and resource constraints impede the development of community health and family planning care in the following ways:

- **DHMT supervisory staff are neither oriented to community health services nor equipped to provide adequate supervisory support to village-based workers.** Pilot activities were supervised by a special team of CHFP community organizers who directed activities and supervised workers. When the program was scaled up to a district-wide initiative, supervision was shifted to the DHMT. Regional roles, district health management tasks and other obligations prevent DHMT staff from conducting routine field visits that the program requires. Fuel and equipment problems prevent DHMT supervisors from attending to a regular village visitation cycle. ***Therefore supervisory support for community health services should be developed through the Sub-district Head or created afresh as a new MOH cadre.*** Current MOH policy statements provide new resources to Level B clinics for decentralized management of the Primary Health Care Program. This new policy should be implemented on a trial basis by the Navrongo project by equipping Sub-District Heads with motorized transportation, and training Sub-District Heads in community liaison methods, community organization, and field support techniques.

- **When CHO are assigned to village locations, they are removed from their residence, separated from families, and isolated from amenities that they have become accustomed**

to. In the course of the scaling up, workers selected for this new role objected to their village placement, complained about the financial loss incurred, and refused to participate in the scheme. In the service hiatus that ensued, many of the pilot adopters were lost to follow-up. In all, 40 percent of all users discontinued as a result of the service disruption. These problems have been addressed through diplomacy and renewed worker commitment to the scheme, but underlying problems persist that merit MOH review. At present, resources of the Ministry are oriented to fixed facilities rather than to communities. Workers assigned to clinics are rewarded with residences, light work loads, and regular work hours. ***Careful review of MOH personnel policies should seek conditions that make village work more appealing:***

- **Housing**. Housing similar to those currently provided to Ministry of Agriculture extension workers or Ministry of Eduation primary school head teachers should be considered. Parity in village housing standards is required so that MOH community workers will be attracted to resident community work.

- **Compensation.** Assigning a CHO to a CHC incurs costs that merit appraisal and MOH review. Consideration should be given to compensating CHO for these costs.

- **Recruitment and posting policies.** At present, women seeking the position of CHN apply for admission to the training program and are posted by their Regional Health Management Team. Consideration should be directed to recruiting candidate CHO from health-deprived localities rather than from a pool of applicants. Assigning workers to their home district is less likely to be viewed as a hardship than the present scheme of assigning workers to communities far from their homes.

- **Worker density.** CHO can visit about 7 compounds a day, given the extensive demand for health care and the time consuming task of introducing family planning. In the pilot, the appropriate caseload was determined to be about 3,500 eligible women, their husbands, and children. Current policy calls for assigning one CHN to population of 5,000. Low worker density creates production demands that cannot be met. As the role of CHO has become understood by communities, ambulatory caseloads at CHC have grown, home visitation health care caseloads have increased, and family planning follow up caseloads have expanded. Resources misdirected to services at fixed facilities should be redirected to increasing the density of community workers. Realistic workloads would improve worker morale, enhance service quality, and extend PHC coverage.

- **Communities will donate labor to CHC construction, promote health services in durbars, and welcome family planning activities. However, seeking cash outlays for cement, iron sheet and other essential construction supplies delays CHC construction and impedes program implementation.** Kassena-Nankana District ranks among the most impoverished areas of the northern regions. Communities provided the resources for CHC construction only after considerable diplomacy and skilled liaison from project staff. ***This level of intense supervisory support of the CHC may not be replicable in other districts, unless modest resources are set aside for roofing sheets, cement flooring, and latrines.***

Conclusion

The pilot phase of the CHFP was an intense period of learning and systems development. Most of the essential lessons emerged in the first three months of pilot work (Nazzar et al. 1995), although some conclusions are based on longer-term observation. Developing family planning services for traditional societal settings requires an "open-systems" approach to program planning. As services are moved from the controlled environments of clinics to the social environment to be served, care is required to adapt operations to radically new circumstances. A trained and conscientious DHMT can perform this community-based planning operation. The CHFP Phase I pilot demonstrates the potential value of doing so in other settings in Ghana.

Notes

1 Soothsayers are traditional shamin who are consulted by men who believe that rites establish contact with ancestral spirits (Adongo et al. 1998a).

2 Findings from the 1993 Demographic and Health Survey indicate that contraceptive prevalence in the Upper East Region is the lowest of any region in the country. Maternal and child mortality rates were high; fertility was high and contraceptive use was rare (Macro International 1994).

3 In developing this register, the NHRC aimed to design a system that could function well in the absence of computers: Hand-held registers can be prepared manually by CHO by printing a blank register in notebook format, and manually completing the pages on the first round of household visitation. In the NHRC system, however, all requisite information for the register is contained in the Navrongo Demographic Surveillance System (NDSS). The NDSS is reviewed by Binka et al. 1997a.

4 Although this program was originally justified as a means of marshaling traditional village support for health service delivery, the VHW scheme has not worked well. The MOH has therefore consigned priority to research on the appropriate design of community health services. The Village Health Worker (VHW) program and the Community Clinic Attendant program have both failed to work. Volunteer programs have become controversial within the Ministry (see, for example, Ministry of Health 1994).

Chapter 4

Scaling Up the Project

Introduction

Upon completing the pilot, the CHFP proceeded to scale up operations in the remaining villages of Cell I, Cell II, and Cell III. However, because communities work at their own pace, programs at the community level need to plan while taking other natural exigencies into account. The rainy season, when all labor is mobilized for farm work, is not the best time to organize any communal activity. Funerals can disrupt planned activities. Lack of resources can seriously hamper initiatives engaging in community undertakings.

Scaling Up Plan

The initial plan was to execute a six-month micropilot and then scale up operations immediately. However, lack of CHFP funds, inertia in some communities, chieftancy problems, and community conflicts prevented scaling up on schedule. Figure 4.1 depicts the pace of progress of scaling operations up from the micropilot to the full-scale experiment.

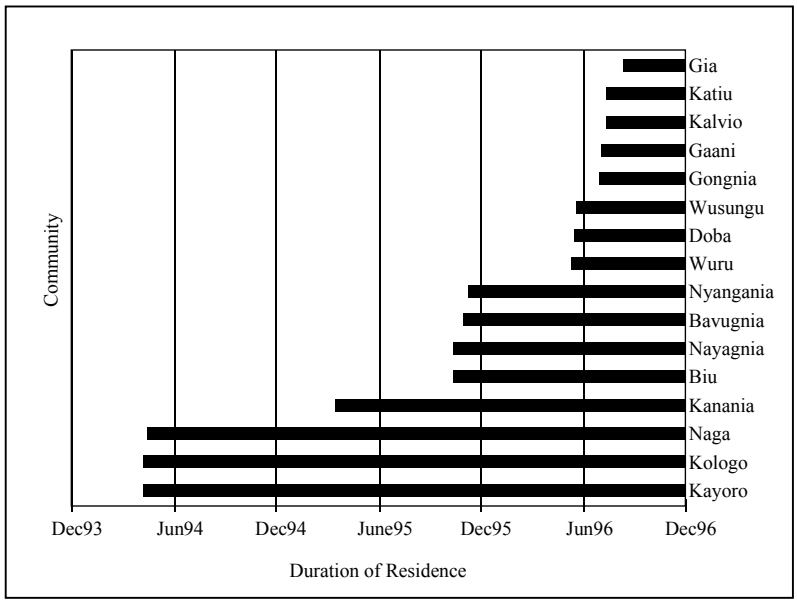


Figure 4.1 Duration of CHO community residence as of December 1996

The first CHO in the micropilot were deployed in February 1994; the last not until September 1996. When compared with the deployment of the YZ, the first YZ went into the community in January 1995. The last YZ were placed in May 1996 (Figure 4.2). The *zurugelu* implementation proceeds faster than CHO implementation for one main reason; clearly, the

condition of constructing a CHC before the CHO can be placed became a problem as resources were limited in operationalizing the concept. Provision of some resources from the Ministry for this activity is crucial for the replication of this mode of service delivery.

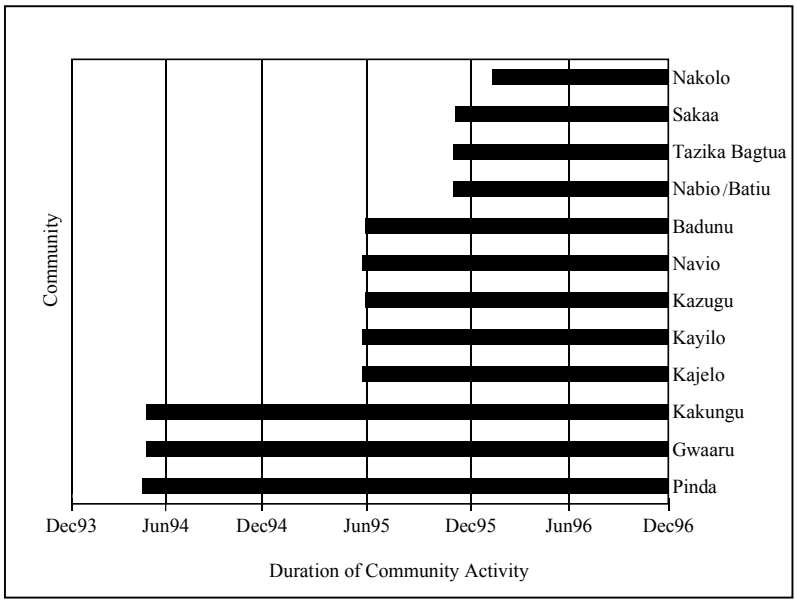


Figure 4.2 Duration of YZ/YN community activity as of December 1996

Early Scaling Up

Scaling up proceeded whenever communities completed CHC construction. Each community was informed through dialogue with chiefs and through *durbars* that a CHO would be posted and operations would begin as soon as the vital CHC component was ready. Successful completion of construction varied from community to community. The level of social organization and leadership in a community, seasonality, and the amount of material resources they can commandeer for communal work determined to a large extent the capability of such a community to execute communal activity. In a nonfunctional community with leadership dispute, organizing communal activity faced problems, requiring the CHFP to turn to influential elites in the community to organize labor. This required time owing to the several meetings that were required. Even in a well-organized community, lack of material resources also became a problem, as members of the community realized that labor alone was not adequate for a CHC. On many occasions, realization of this handicap prevented them from moving on to undertake the communal activity. Whenever the genesis of this hesitation to undertake communal activity became known, frank discussions on how to solve the problems were required. The diversity of this community context has varying impact of family planning uptake. Figure 4.3 shows prevalence trends from six communities where nurses were placed in 1995.

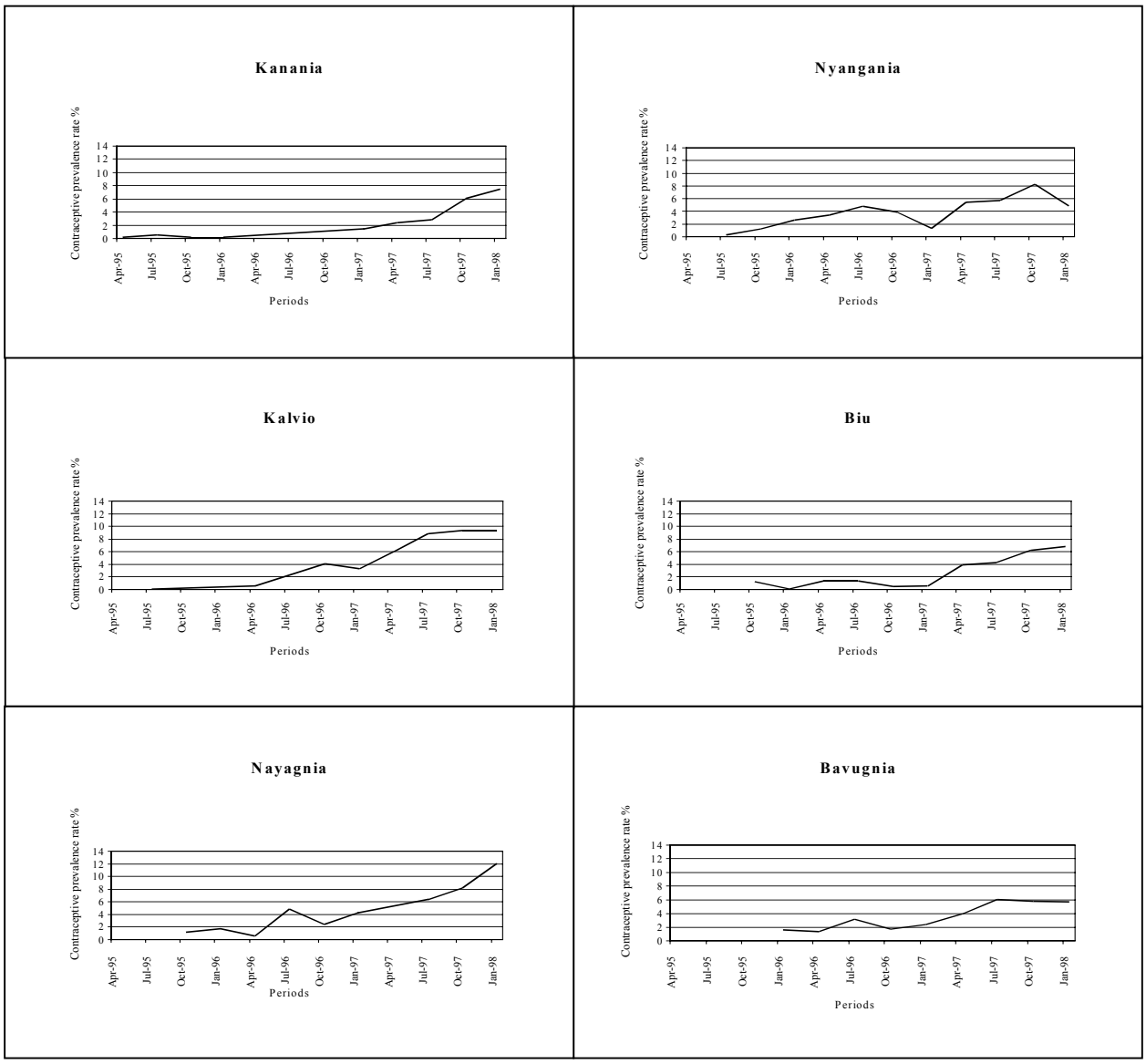


Figure 4.3 Contraceptive prevalence trends for six villages that implemented the CHFP in 1995

Responses to CHFP implementation differed quite markedly by village. In Kanania, for example, contraceptive use was nearly zero for two years following implementation. In Nyangania and Nayagnia, however, pronounced increases are evident early after services were implemented. In general, such increases follow patient development of community health care, gradual development of CHO credibility and methodical outreach and communication activities. In general, reproductive change does not occur rapidly in this setting.

Late Scaling Up

Figure 4.4 on the following page depicts dynamics of seven communities that had nurses deployed in 1996. Again there is the usual slow start in the beginning to be followed by a gradual but steady increase in the contraceptive prevalence rate (CPR). However in some communities, uptake is extremely slow and all efforts are being made to understand the phenomenon. In general, where community problems impede CHC construction, prevalence remains low in the post-implementation period because community support for outreach work is minimal. Again fragile demand for family planning is demonstrated by dips in the time trend whenever the nurse is away from the community or problems disrupt regular outreach activity. Table 4.1 and Table 4.2 detail problems of scaling up and their solutions.

Social Problems Encountered in CHO Community Deployment

Community consultation. Placement of nurses in the communities posed various challenges to the project. Many of these were resolved through close consultation with social leaders who provided guidance on problem solving. Social conflict interfered with the ability of the community to come together and provide communal labor. In such instances we consulted the elders and paramount chiefs to advise us on how to proceed and whether a public meeting would be attended by factions involved in the dispute.

Gender issues. Placing female health workers in isolated communities is inherently a challenge in a stratified patriarchal society. CHO husbands' insecurity about their wives' safety and fidelity required diplomatic intervention. Spousal consultations to help them appreciate the value of their partners was useful in diffusing tensions. Whenever a dispute arose between a worker and her partner as a result community residence, a team composed of knowledgeable

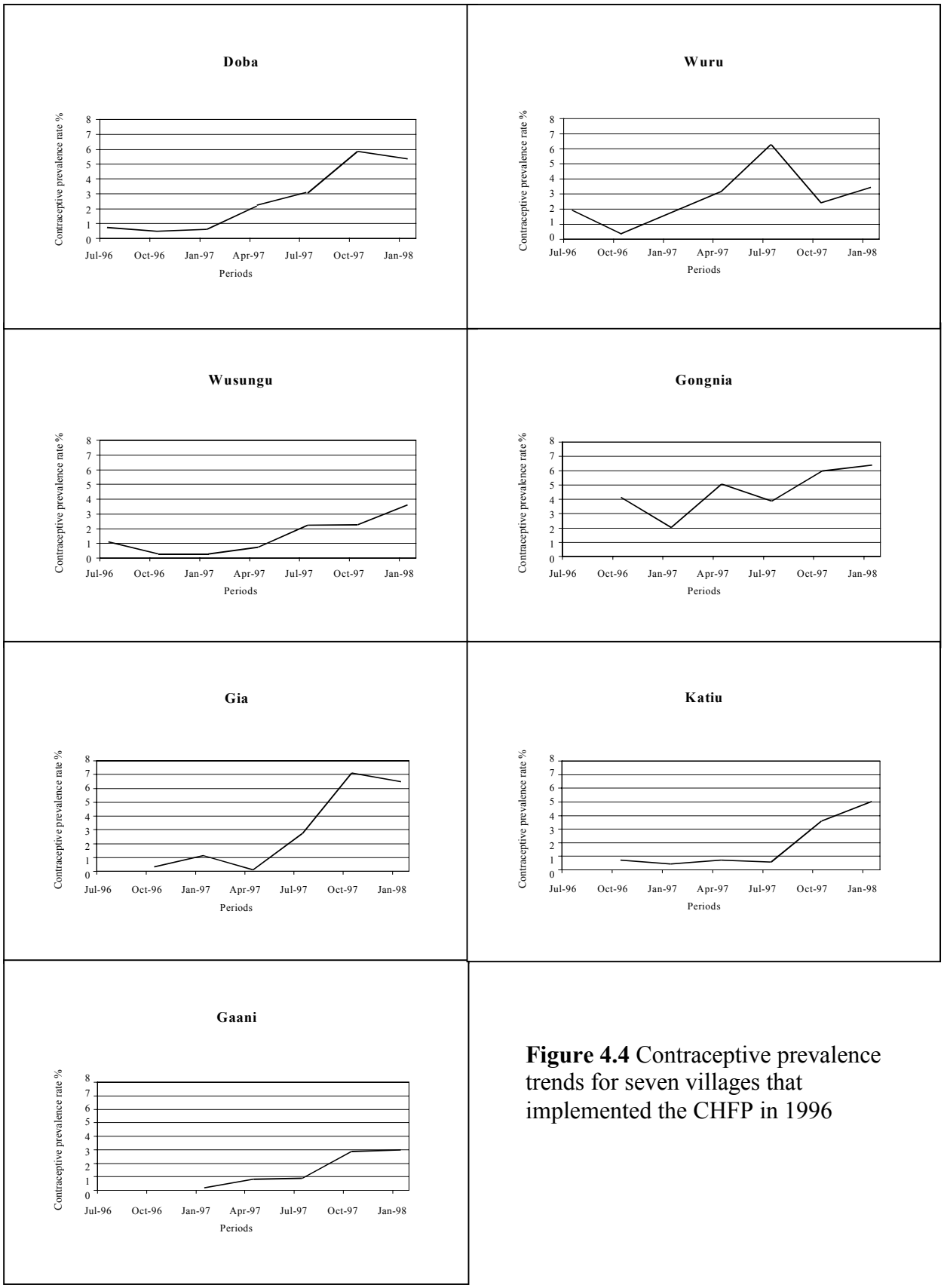


Figure 4.4 Contraceptive prevalence trends for seven villages that implemented the CHFP in 1996

Table 4.1 Problems encountered with scaling up the CHFP: The nurse outreach component

Communities (CHFP cell)	***Problems encountered***	*Solution*
Phase II villages (Early scaling up)		
Kanania (II)	Weak traditional and political leadership; pre-existing outreach clinic undercut community interest in CHC Program.	External funds are needed where communities are leaderless and unmotivated. Meanwhile adopt stand-alone structure and use it as CHC.
Nyangania (II)	Hard working Assemblyman provides shared apartment as CHC. Social discord ensued as society questioned justification of such as arrangement for CHO.	Construct separate stand alone CHC. Constitute male outreach to resolve discord.
Biu (III)	Existing fully built up structures for clinic. Community members saw no reason to organize communal labor to build mud structure.	Place CHO in the existing structure.
Nayagnia (III)	Dynamic chief provides vacant accommodation as CHC while plans were afoot to build new CHC.	Philanthropist provides funds for the construction of concrete block for CHC.
Bavugnia (III)	Community willing to provide labor for construction of mud walls. Unable to provide tin roofs and cement.	District Assembly contacted and provided tin roof and Centre provided cement to strengthen buildings.
Phase II villages (Late scaling up)		
Doba (III)	Weak leadership that commands no respect. Community divided and difficult to mobilize.	Contact and mobilize youth through youth leaders. Contact opinion leaders and mobilize community through personal involvement of influential community leaders.
Wuru (III)	Traditionally, component parts of CHO catchment area do not work together. Assemblywoman who led us into the community had support from only one of seven component communities.	Work with new sssemblyman, call general meeting. Explain that health and disease know no territorial boundaries. All must work together.
Wusungu (III)	Community cannot be mobilized when chief is absent. Labor available but no resource for tin roofs and cement.	Frequent contact and perseverance; district assembly provided tin roof and Centre provided cement.
Gongnia (III)	Community already committed to the construction of Youth Centre and Nutrition Centre.	Community divided into two sections. One section agreed to provide CHC; District assembly provided tin roofs and Centre provided cement.
Gia (III)	Chief in conflict with spiritual leader. Chief commands little respect and so cannot mobilize effectively for communal labor. Chief same as Assemblyman.	Frequent contact and perseverance. Link community to philanthropist who provided resources for cement block CHC. Very difficult to get chief and community to build CHC eventually.
Katiu (II)	Chief did not attach initial importance to CHC. Lots of delay in starting CHC. Durbars were initially attended by only men.	Mobilize women into the durbar grounds to ensure wider dissemination of project goals. Frequent contact with chiefs and elders and threaten to move project to another community.
Kalvio (II)	Weak community leadership. Lack of water for major part of dry season to mold bricks.	Perseverance and frequent contact. Fall on powerful paramount chief. Direct liaison with groups. Link community to source of outside funding.
Gaani (III)	Large area with four composite communities. Hard to come to collective decision as to where to place the CHC. Difficult to mobilize people from various communities.	Renovate an abandoned school classroom. Cement provided by District Assembly. Research Centre provided roofing sheets.

Table 4.2 Problems encountered with scaling up the CHFP *Zurugelu* component

Communities (CHFP cell)	*Problems encountered*	*Solution*
Phase II (early scaling up)		
Nayagnia (III)	Two YZ selected and trained. One worked for I yr and moved on for further education.	Replacement YZ trained and deployed.
Biu (III)	Area too large for two YZ.	Two additional YZ trained.
Naga (III)	Small remote community, YZ Deployment delayed behind CHO deployment.	Intensify community mobilization to select and deploy YZ.
Pungu Bavugnia (III)	Large area. Low YZ density.	Train and deploy additional YZ.
Kazugu (I)	Chief and people cooperative. No problems.	
Navio Central (I)	YZ active. Had to travel out of town for medical treatment.	Replacement YZ trained and deployed.
Badunu (I)	Lively community with good leadership. No child welfare clinics in community.	Train female YZ to weigh children and conduct basic CWC.
Kajelo Central (I)	YZ could not account for drug money	YN recouped all money from YZ. Culprit YZ dropped and new YZ trained and deployed.
Kajelo Baloo (I)	YZ could not account for drug money and absconded from village.	YN contacting relatives to retrieve funds. New YZ trained and deployed.
Phase II (late scaling up)		
Pungu Wusungu (III)	Large area, one YZ inactive, dropped by community members.	Replacement YZ trained and deployed.
Nabio/Batiu (I)	YN Secretary could not account for drug money.	Community ensured that YN Secretary refunded all money and was replaced in that capacity.
Tazika/Bagtua (I)	YZ hard working but area inaccessible during rainy season.	YN/YZ stock sufficient drugs for the rainy season.
Sakaa (I)	None.	
Chania (I)	None.	
Boania (I)	YZ had personal conflict with YN. Efforts to resolve this impasse failed. YZ stopped providing health services.	Replacement YZ trained and deployed.
Wuru (III)	Seven sections of the village do not easily work together; 2 YZ selected from same family unacceptable to rest of community.	Meet with community and new assemblyman. Challenge leadership to identify 4 YZ acceptable to all. Train these and deploy.
Nakolo Central (I)	4 YZ under one group of YN located in one section of a large area portions of which are seasonally inaccessible.	Separate YZ into two groups and create YN groups for each YZ team.
Doba (III)	One YZ had difficulty accounting for drug money.	YN seized his bicycle and ensured refund of all monies. YZ reinstated.
Vunania-Gaani (III)	One YZ moved out of area; did not account for drug money.	YN and elders contacted ralatives to refund drug money. Replacement YZ trained and deployed.
Gongonia Nangalkinia (III)	One YZ moved on for further education.	Replacement YZ trained and deployed
Gia (III)	Large area, YZ from only one section. Inadequate coverage.	Additional YZ trained and deployed.
Nakolo Kuliya/Kasulponu (I)	YZ obtained a paid job and moved on.	Replacement YZ trained and deployed.

and respected members of the Project was called upon to provide family advice and assistance with this problem.

Preventing staff disputes from becoming community disputes. On one occasion, dispute developed between a CHO and her supervisor. The CHO mobilized portions of the community to side with her, while other members of the community sided with the supervisor. In response to this split, the Project consulted with chiefs and elders, held a series of meetings with the community members and withdrew both the CHO and the supervisor to allow tensions to subside and new workers to be introduced into the community.

Place of origin and place of work. The project quickly learned that putting a CHO in her marital community jeopardizes her ability to function professionally. A wife living within her community is expected to perform traditional chores and provide favors to in-laws; these demands compete with professional duties. On the other hand, placing CHO in communities far away from their marital homes helped to avoid these extra demands on their time and allowed them to function with maximum attention to their professional duties.

Frequency of supervision. Placement of CHO in the community requires frequent supervisory visits that are structured to be supportive and facilitatory. When supervisory visits are infrequent and erratic, the impression is created that being assigned to the community is a form of punishment.

Training activities. Nurses that agree to assume community residence need to participate in refresher training sessions, and must not be made to feel that they are losing any privileges by agreeing to move into such positions. They should be invited to participate in all district training sessions.

Implementing the Full Experiment

Improving Quality of Services

The following set of activities aimed at improving quality of health services were carried out across the district.

The DHMT. At all stages of the project, the CHFP worked closely with the DHMT core staff; the two units planned activities together. The micropilot was jointly run by the DDHS and the DPHN together with the rest of the team with the research team providing guidance and technical assistance. This active involvement of the two teams enabled clear, concise, and

relevant observations to be made that impacted on the further development and structure of the full experiment. It also built capacity and understanding of the challenges of the project, its relevance and need to modify the structure to suit the new service delivery strategy. Improvements in the quality of the DHMT in planning, budgeting, supervision, and use of MIS positively reflected in performance at the subdistrict level eventually leading to improvement in quality of services.

Screening and referral to the district hospital. All CHN in the district, and their subdistrict heads received an initial four-week experiential training course on preventive and curative medicine, family planning counseling services, as well as the conduct of outreach services. After deployment CHO and their supervisors had regular monthly training sessions to improve their professional capabilities. The result is improved capacity to handle minor ailments in their place of work and the increased capacity to refer cases to the next level of competency.

Putting CHO and YZ in the various communities ensured availability of a resident health care provider. This initiated the flow of clients through the health care system. At the community level, minor cases that form the majority of cases, are treated. More complex cases are referred to "Level C."

Health promotional activities for sanitation. Community health care providers (CHO and YZ) canvassed compounds and provided health talks that are compound- relevant and specific. The talks related to actual situations on the ground. They dealt with child care, immunization, antenatal care, delivery and post-natal care, environmental sanitation, nutrition, and malnutrition. The CHO visited at least seven compounds each day and visited every compound every 90 days. Health education in the communities thus reached every home. To facilitate this, CHO had motorbikes which enabled them to cover an average of 350 compounds per cycle. YZ had bicycles for this purpose as their catchment area was much smaller.

Health promotional activities for STD/AIDs prevention. With community-based health care providers in place and regular health talks taking place, technical assistance was sought from the Centre for Development and Population Activities (CEDPA) to provide training in integration of prevention of STD/AIDs to family planning services. The training focused on risk assessment, and promotion of condom use as well as identification and avoidance of harmful and risky traditional practices that predispose people to the transmission of AIDs and other STDs.

Maternal health services: Midwifery training for CHO. After the initial CHO training for the micropilot villages, it became apparent very quickly that they felt inadequate in providing any support to the TBA. Basically, their preservice training did not provide them with enough skills and competencies to handle this. The response of the DHMT and the CHFP was to swiftly withdraw all the CHO from the communities and put them in the obstetric ward to acquire on-the-job experience in midwifery. This became the norm and all subsequent CHO went through this training. By this mechanism, placing CHO in the communities provided resident midwifery skills and back-up support to the TBA.

Ambulatory care. The traditional practice of CHN is to provide health education and participate in immunization and family planning activities. They spent initially no time in curative services. The concept of a first line community resident health care provider demand that such care providers deliver some basic package of curative services and referrals. Initial training and continued on-the-job training in common endemic infectious diseases provided the answer. All CHO were trained to manage uncomplicated malaria, diarrhoea, and acute respiratory diseases in the community and provide first aid to wounds and other skin diseases. More complicated cases were referred. The village volunteers were trained to provide curative care for malaria and diarrhoea, provide family planning counseling and service for nonclinical and nonhormonal devices, and to refer other cases to clinic settings. As a further development, the volunteers have been trained to provide the oral pill, and this trial is under observation.

The village volunteers were also trained to read and interpret the "Road to Health" chart, to identify those kids that are not fully immunized and those that are failing to thrive, and to provide referral advice and link patients up with MOH outreach activities. This was made possible by providing them with a detailed timetable of outreach schedules from the MOH, and involving the volunteers in communication for these services.

Improving geographic access to health services. The Kassena-Nankana district spans 1675km^2 of land space. There are four basic health centres. Geographic access, in the absence of adequate public transportation system is, as expected, very difficult. To improve on geographic access, the project researched two options:

- ***CHC.*** Communities were approached and mobilized to construct CHC. CHO subsequently relocated into these structures and provided a package of health services for these locations. Geographic access and time spent seeking health care or consultation dramatically improved.

The presence of the CHO in the community had another important impact. She had the chance to understand and appreciate the living conditions of her catchment population and could better tailor her health education activities to their needs.

- ***Volunteer system.*** Ownership of the project improved when communities agreed to select their own members to be trained and redeployed in their communities. Proximity and permanence in the communities made basic health care available around the clock in these communities. Repeated training ensured improved quality of services.

Outreach to chiefs and elders for CHO-CHC or YZ introduction. Emerging from the analysis of the traditional, MOH, and political structures in the district, there was the need to develop a structured outreach to the chiefs and elders for various activities in the communities. The placement of CHO in the community requires a traditional residential structure. Outreach to chiefs and elders led to the provision of donated space and communal labor to erect the structures. Concurrent outreach to the political structure enabled Assemblymen/women in the communities to approach District Assemblies for building materials. Input into construction was made from the Department of Rural Housing and Cottage Industries by providing technical advice and guidance on architectural design of the buildings. An NGO known as Rural Aid also provided technical advice in the construction of pit latrines.

Selection, approval, training, and deployment of YZ also required outreach to the chiefs and communities. Again as stressed in the introduction and the resultant interplay of the three identified systems, an approach to mobilize one-system demands concurrent forays into the others because they communicate with each other. Assemblymen facilitate YZ selection and community mobilization in the communities. The presence of the chiefs at *durbars* lends credibility, authenticity, and legitimacy to the discussions and the process.

Improvements for MIS. The need to monitor the work of the CHO and YZ in the community is a basic requirement for research activity to enable impact assessment. These community resident health care providers belong to the subdistrict and are not on their own—monitoring their output and that of the entire subdistrict became crucial and structures were developed to improve CHO supervision—benefitting the subdistrict as a whole. This eventually led to the gradual scaling up of the zonal meetings on a monthly basis where each unit under the subdistrict health management team had to report on the work of the unit. Thus, from a research necessity, the subdistrict health service delivery system adopted positive attitudes from examining and managing service statistics, and basing decisions on evidence. The requirement to

hold these monthly meetings also required that supervisory activities take place regularly. The development of indicators and a checklist facilitated this activity as supervisors do not need to write lengthy reports but just fill out forms that tell a clear and comparable story of the status of activities in the various communities.

Logistic support. Assessment of impact depends on collection of service delivery data. Each subdistrict was allocated one motorbike solely for data collection, analysis, and reporting. To ensure that the motorbikes remain serviceable, all CHFP motorbike riders were given basic training in riding techniques and maintenance skills. For all CHO in the field, the Project provided fuel for their work. A preventive motorbike maintanence scheme of monthly servicing was introduced.

Village-based pharmaceuticals. The process of community mobilization and regular canvassing of compounds generated more demand for services, both curative and family planning. To ensure that the rampant shortage typical of the MOH does not interrupt service delivery, drugs and family planning supplies were stocked by the project and issued to the CHO in an accountable manner. Drugs and family planning supplies were procured from the MOH regional and district pharmacies. These were given out to the CHO and YN/YZ at cost. The CHO received and signed against the value of the drugs. On a weekly basis, she paid in proceeds from the sale of drugs. This enabled her to run a cumulative account balance. This account had the upper limit of 100,000.00 cedis. In other words, no CHO was permitted to hold drugs and cash totalling more than 100,000.00 cedis at any particular time. This was to ensure strict accountability. Drugs dispensed for conditions diagnosed and treated were recorded in a notebook.

A similar system of drug accounting was established for the YZ. In this case, drugs moved through the YN and at each level strict accounting procedures were established.

With the above measures, improvements on the government policy of the Bamako Initiative were made. Cost recovery was nearly 100 percent.

Village mobilization: Female and male networks. Much has been written about mobilizing the hierarchy of the traditional system. The fabric of the community is woven tightly together through a system of social networks—male and female. Many of the groups exist for trading, communal activity, social welfare, and many other reasons. They have leaders that are

selected out of merit in voluntary spirit, and dedication to development efforts in the community. Connecting with health development activities yielded very positive results.

An innovation of the Project was to constitute a group of elders into the *Yezura Nakwa*, the health committee that was responsible for health administration in the communities. They stocked and administered drugs to the YZ, saw to the maintenance of the bicycles, settled community disputes that arose from the work of the YZ, and supervised the financial management of the drug account. Also, they actively participated in community mobilization for communal activity. As elders and respected members of the community, the Project seized the opportunity to organize quarterly 2-day training sessions for them on management of the health care system in the communities. Issues on family planning and reproductive health were also discussed extensively. In a relaxed and friendly atmosphere, these elders discuss their fears about family planning with Project officers. Heated debates were also carried out on other issues such as female genital mutilation (FGM). The YN are useful barometers in gauging community reactions to Project activities. Keeping them well informed also serves the Project well, as these elders are in a better positon to defend and propagate CHFP objectives and activities.

Conclusion

Implementing the Community Health and Family Planning Project posed many challenges. The strategy of community consultation during the design phase enabled the design of a project that was culturally appropriate and acceptable to the community members. The use of social science research to fine tune the design, and the employment of strategic planning in the design of the full experiment coupled with the gradual scaling up process, enabled the community to actively participate and still contribute—building full ownership. Community members serve as consultants for making services relevant and culturally sensitive.

The CHFP has launched community health and family planning services in a setting where utilization of fixed facilities is low and contraceptive use is rare. Findings from the first two years of field operation demonstrate the consequences of fragile demand for this service regimen. Any disruption in the quality or intensity of CHFP care has been associated with corresponding disruptions in the continuity and prevalence of contraceptive use. Introducing reproductive change in a rural social setting requires extraordinary care in assuring intensive and caring outreach to the women and men that the system serves.

Chapter 5

Community Reactions

Introduction

Efforts to involve communities in the MOH community health program often take the form of cursory visits by outreach workers who exhort leaders to comply with some new MOH program. To develop a more meaningful and truly collaborative program, the CHFP implemented services in conjunction with a program of dialogue with the communities served. This chapter reports on findings from this community-based exchange of information, advice, and guidance. Two broad aspects of reactions to the program are discussed: negative reactions leading to social discord, spousal mistrust, and anxieties about the CHFP initiative; and, positive reactions, in which villagers expressed their appreciation and support of the CHFP initiative. Next, the chapter reviews social characteristics that were expected to produce reactions to the project, but did not do so. The chapter concludes with a synopsis of the policy implications of these reactions.

Positive Reactions

Focus group discussants consistently indicate that the new health care and family planning service delivery is welcome in their communities. Participants were clearly convinced that the CHO presence was already having an impact on health. Community members consistently had detailed knowledge about the nature and scope of CHO activities, the groups targeted for each activity, and the content of the talks that she organizes. This view is illustrated in Box 5.1. CHO are seen as meeting a need in the community since there are no resident doctors, and transportation to Navrongo is a problem.

Box 5.1

Kayoro men

For we are all happy with the nurse for the work she is doing here because she wants to help us.

At first diarrhoea has been killing our children, but as they (the nurses) have been coming, it is now better for our children.

CHO are respected as educators and providers of both health and family planning services. Although it is unlikely that activities have impacted on mortality, respondents genuinely believe that the number of children dying has been reduced (Box 5.2). Perhaps because women are directly contacted, they are able to discuss CHO work in greater detail than men. They discuss the range of topics for which their group is targeted. Compound visits and face-to-face interaction is very much appreciated. The communities are generally satisfied with the scope and quality of the services provided. Findings indicate that this approach has achieved the objective of establishing credible health services by linking family planning to a regimen of care that people accept and respect (Box 5.3). Although the CHO has been cautious not to emphasize family planning too forcefully or too categorically, participants generally agreed that there was nothing wrong with the CHO giving family planning talks. This was seen by some as a necessary duty that is useful for those who do not understand what family planning entails.

Box 5.2

Naga woman
At first measles has been killing our children and high fever has also been killing them. If it had been that time you came, you wouldn't have seen us. We would have been at a funeral house. As she has come, we haven't seen children dying again. We are happy with the nurse.

Box 5.3

Kayoro man
When she comes what she talks to us about is our health. A lot of women have not been to the large place (city) and some of us have not also been to the large places before so how can you and your wife handle your children? Secondly, she also tell us how we will give birth and it will help us in our lives.

Reactions to family planning in mixed-gender groups and mixed-age groups were varied. High-parity participants are more comfortable with family planning discussions than are low-parity participants. Young men are particularly shy about such issues, while literate respondents are clearly more comfortable with such issues than are illiterates. The community felt comfortable with family planning discussions at *durbars* and repeatedly expressed the view that *durbars* are for the welfare of the community. However, the reaction to distribution of family planning supplies (condoms) at *durbars* was mixed. Male focus groups generally found this to be acceptable, but most women objected to distribution in such a public place because of their dread of ridicule.

The conclusion that emerges from the dialogue is that *durbars* are valuable for communicating the theme of family planning to men. Women view this as a form of empowerment, since male leaders speak to men about something that women care about but are powerless to pursue. The open discussion of family planning legitimizes familial discussion of this issue, putting into the open, matters that were previously too sensitive to raise on their own. As a promotional and discussion mechanism for men, it is appropriate to distribute condoms to men. Women doing this as service providers create controversy, but this may have the benefit of demonstrating that cross-gender exchanges on the subject are acceptable and normal.

Open public distribution of contraceptives to women is not yet acceptable, however in this setting. Men feel uncomfortable with women controlling contraception; women feel that distribution will be an affront to husbands and kin causing embarrassment and ostracism. Public distribution of contraceptives to women is greeted with considerable apprehension. A far more acceptable approach is to visit women individually and privately with health as the publicly announced purpose of the encounter, and to discretely offer family planning in the regimen of care. That is, promote family planning as a concept in public groups organized by male lineage heads; offer the service discretely in private to individuals on demand.

Durbars form a common platform for the discussion of all rumours and erroneous notions and beliefs (liberation of women and the undermining of a man's sexual role), about contraception in particular, and family planning in general. Issues raised are carefully explained by a CHFP team, bearing in mind, gender-sensitive issues. This alleviates fear and creates harmony about contraceptives and family planning in the community. The system of male mobilization focuses on adolescent and young men who have much apprehension about family planning because of the obligation to have children. These two strategies help explain family planning and the increased desire to use it.

Negative Reactions

The institutions of marriage, polygyny, and bridewealth impart the notion of wives as property. Women are acquired through marriage negotiations. Men do not want their wives to practice family planning because they associate reproductive control with "women's liberation or emancipation," and feel that allowing their wives to practice family planning will lead to loss of control over their own reproductive future. This belief derives from polygynous social norms that

restrict women's autonomy and emphasize the need for men to assert their leadership control. This male reproductive control is institutionalized through marriage and formalized by the payment of a bridewealth to the woman's kin. In response, men view wives as property, and reproductive autonomy gives women an element of status that threatens men as owners of their wives.

This concern, in turn, underlies male resistance to family planning practice. An extension of this belief is the fear that family planning will promote promiscuity among women (Box 5.4). Men openly express the view that allowing their wives to practice family planning will equip them to sleep around without risk of pregnancy, or leave any evidence of their extramarital affairs (Box 5.5).

Box 5.4

Kayoro male opinion leader
Some too say if you do that to your wife, she will now be free. She will not respect you again.

Box 5.5

Kayoro young male
And also if you allow your wife to do that (family planning), you will see that she goes out for men all over the place...if you give her the chance and she goes to any place, she is not afraid to sleep with a man. That is why...we don't want our wives to do it.

The possibility of a wife contracting AIDS and infecting the husband through her promiscuity was also discussed. The AIDS crisis underscores the notion that the sexuality of women is a threat to men that must be controlled through restrictions to autonomy.

Spousal separation, prevalent practice of postpartum abstinence, and low female coital frequency associated with polygyny all contribute to the traditional view that sexual relations must be highly controlled, and coital discipline of wives is a matter of honor for their husbands. Coital freedom associated with family planning is unmanly and socially degrading. The view is expressed very succinctly in Box 5.6.

Box 5.6

Naga male opinion leader
Some will say, 'I will not take my cows and go and marry a woman and she will tell me, family planning.'

Some men resist family planning because of their traditional view of the importance of lineage and the prestige accorded to men who have large families. Having many children ensures that there are enough males to continue the family line. Lineage customs are manifest in religious beliefs. Ancestral spirits are extensions of the lineage, and reproductive matters have

considerable spiritual significance. Family size is something which should be left to God. Interference with divine providence will lead to incurring God's wrath. The more children a man has, the more prestige he has.

Concerns about the perpetuation of the lineage are exacerbated by high childhood mortality. Although there is significant improvement in infant and child mortality rates, and awareness of this improvement, the concern exists that if one has few children, some will die because infant and child mortality still persists—people feel genuine anxiety about losing a child through sickness.

The insurance value of children is also an important reproductive motive. In the absence of any secular insurance schemes, children represent the only secure form of insurance in old age. But migration to cities is extensive, and the reliability of children who leave is suspect, so some respondents argue that many children are needed to ensure that one or two sons remain to farm ancestral land and continue the lineage, and provide food and sustenance for the corporate family.

Health concerns and unfounded rumors derive from male sexual mistrust. A man who is worried about losing his wife to another man also worries about losing her fertility to a mysterious drug. Many men believe that family planning leads to female reproductive problems. When one's wife practices family planning, she may become barren, or even die. (Box 5.7).

The concept of family planning is also misunderstood to mean terminating future births, an idea that is an anathema in a pronatalist society. Family planning is also confused with abstinence rather than viewed as a substitute for abstinence (Box 5.8).

Box 5.7

Kayoro young male
There are some who are afraid that if they do the family planning, they can spoil their wombs. Like if they have given birth or not, and they practice it, they cannot give birth again, and that is not good. So some men are always afraid that will happen.

Naga male opinion leader
Some men are there, when they allow their wives to do it in future the woman wants to give birth, they will try and try, and the woman cannot give birth. So with this, if it happens to a woman and they hear about it and they say his wife should do it (family planning), the man will not agree.

Kayoro young male
The problem is that we the men do not understand the meaning of family planning. We thought there is death in it...

Box 5.8

Kayoro female opinion leader
They were thinking that it (family planning) meant if you give birth to two or three children, you should stop".

Some men believe that women practicing family planning will refuse to have sex. There is also a belief that family planning will result in a woman having multiple births.[1]

In the discussions, it was revealed that some men understand family planning, but practicing it may just not be convenient or practical for them given their circumstances. That is why they do not want their wives to practice family planning. This is especially true of men who experience long delays before their wife gave birth. A husband would not want his wife with such a history to wait before trying to conceive another child.

Participants in women's focus group discussions echoed some of the concerns that the men had, such as dread of reproductive problems and anxiety about being deprived of sex as a punishment for practicing family planning. Women are greatly concerned about dire social, familial, and physical consequences of practicing family planning in defiance of a husband's views. These threats include: strain in conjugal relations, male brutality, losing husband's love, ostracism in the extended household, and divorce. Due to these threats, women make conscious choices not to practice family planning, although they would have liked to.

Other factors discussed by respondents included poverty and its ramifications, in-laws, a woman's traditional responsibility of childbearing, lack of education, concern about wrong administration of family planning drugs, and women not taking the opportunity to practice family planning although husbands are not opposed to it.

In a traditional rural social setting, where most of the inhabitants are subsistence farmers, poverty is always present. Because of this, people often have to prioritize their needs. Survival in terms of food for the household, especially the children, becomes a top priority (Box 5.9).

Box 5.9

Naga elderly woman
But at times if you get 50 cedis (4¢ US), you will use it to buy salt because you can't use it to buy drugs and sleep with hunger.

Some women acknowledge that their husbands would like them to practice family planning but have no money to give them for the injections (Box 5.10). They argue that if they had their own resources to meet the cost of supplies, and their husbands do not concur with family planning; they could proceed to practice despite this opposition. Dependence on husbands for money constrains women's contraceptive autonomy.

In this society, the woman marries into and lives in the compound of her husband where she is subject to two or three tiers of authority, depending on the complexity of her husband's

extended family. A woman is obligated to respect elders, especially her husband's kin. The virilocal household structure can complicate women's autonomy, and contributes to strains in conjugal relations. In a large compound, a husband may not have the freedom to express his own desires because of the presence and interference of his parents and other kin. Members of the husband's extended family obligate wives to pursue traditional roles as mothers. For this reason, compound size affects parental autonomy, and this in turn impedes health seeking behavior (Box 5.11).

Box 5.10

Naga young woman
If your husband doesn't agree for you to do (family planning) and your pocket has got it (money) and you know you can go and do, you should go and do without telling him.

Box 5.11

Naga young women
Some of our husbands understand, but their mothers do not agree.

His mother and father did not agree. His mother did not agree and said that I am fooling him not to give birth for him. Because of that, he did not give me the money to go and inject...

Oh family planning! They married a woman to give birth and fill the house and she will get up and say family planning. What is family planning? That is why someone will say he will not tie his cows and marry a woman so she will not give birth for him and his house. He will not understand, and it will be a fight between you and your husband.

The presence and attitudes of co-wives towards family planning, and competition between wives also adds to the complexity of the dynamics within the compound. A wife who does not practice family planning may be seen as pursuing her traditional role to be respectful and submissive. Other co-wives will be threatened by such a wife because she will be favored by the extended family, and perhaps, by the husband. Box 5.12 illustrates the anxieties faced by women in a polygynous household.

Box 5.12

Naga young woman
The reason why we don't practice family planning is that, as for me, I am the first and if my husband marries and adds to me and I go and do it and she doesn't do, he will love her. He will not love me again...I will (rather) give birth to my twins and be sitting there.

At this stage, the role of the compound size and family complexity as a determinant of contraceptive use is unknown, but focus group respondents suggest that women residing in small compounds with few nuclear families will have more autonomy to adopt contraception than women residing in large compounds where familial relationships are complex and roles are constrained.

In this situation, a wife's fundamental duty is to produce children for the corporate family. Women bow to this pressure because they are constantly reminded of the significance of the bridewealth that was paid to their kin, and threatened with the possibility of being sent back to their natal homes if they fail in this fundamental familial role. In such a situation, the bridewealth is returned to the man and his family and is a matter of hardship and embarrassment. Many women opt not to practice family planning because of these responsibilities, for to fail in one's reproductive role brings disgrace to both families.

Denial. Family planning is thus fraught with grave personal, familial, and social risks. It is little wonder, therefore, that contraceptive adoption is associated with considerable shyness and obsessive concern for secrecy. Shyness is manifest in various ways. Some women are too shy to go to the nurse or a clinic (Box 5.13). Others may prefer to secretly buy supplies from drug peddlers in the market. This means that there could be more adopters. Shyness also results in discontinuation.

Box 5.13

Kayoro elderly woman
Someone is there she feels shy, she fears to go the nurse.

The problems of constrained autonomy and shyness are compounded by the low female literacy rate of twelve percent in the district. Most of the women in the villages are illiterate, as a consequence. Women are remarkably open in expressing the view that lack of education constrains family planning adoption. They are concerned about the health consequences of misadministration of drug regimen and generally misunderstand drug contraindications due to their inability to read and comprehend instructions. Family planning drugs are misperceived as powerful life altering drugs that can cause temporary barrenness, or sterility. Some women also believe that injectable users must have frequent sex with their husbands to avoid complications. But more common is the belief, found in many settings where reproductive morbidity is high, that family planning must be stopped as the first recourse when any health problems arise.

Not all women view constraints on adoption as a problem or as something that emanates from others. Many even defend their husband's opposition to family planning. Husbands sometimes give their consent but the women do not take the opportunity. They procrastinate, or don't go to the nurse, and end up blaming their husbands for not allowing them to practice family planning.

Spousal mistrust and discord. Dynamics on sexual and family planning matters represent a key factor constraining fertility regulation among women. The nature, degree, and dynamics of spousal communication in the society is constrained by the social, economic, physical, and psychological factors discussed in the preceding section. Focus-group discussions provide insights into the nature and dynamics of spousal communication on family planning, and illustrate how women's and men's perceptions are influenced by societal, religious, and economic factors, which, in turn, complicate family planning negotiations between spouses.

Investigators examining the implications of polygyny in sub-Saharan Africa often allude to the impact of polygyny on spousal noncommunication, sexual mistrust, and weak emotional bonds in marital relations (National Research Council 1993). Female focus group discussants often mention domestic violence, men's sexual insecurity and their own anxiety about fragile emotional bonds of marriage as reasons why they do not discuss family planning with their husbands. Women interested in family planning view the whole process of discussion as futile, and prospects for violence with considerable foreboding. A husband will not only refuse to concur with contraceptive practice, but will also accuse his wife of refusing sex because she wants to space her births. Discussion of sexual relations is a prelude to violence that women very much try to avoid. Avoidance of conflict about family planning limits spousal communication on family planning.

Men thus perceive family planning as a practice which liberates women and undermines their status and authority. As a result of this perception, husbands do not want to discuss family planning with their wives for fear of losing control over them—a behavior that is a humiliating prospect for a man that will subject him to ridicule. Once a wife becomes equipped by family planning to control her fertility without her husband's consent, she will pursue other men at will. Some men argue that husbands do not have to hold discussions with their wives; a man should only inform a wife of his decisions, or simply implement them without discussion, which only leads to arguments rather than spousal understanding.

Spousal mistrust underlies some of the other reasons men give for not communicating with their wives. They include: mistrust of husbands by wives leading to suspicions and misinterpretation of statements; mistrust of wives resulting in perceived promiscuity of wives; wives using family planning as an excuse not to have sex; and the futility of discussions with wives because of the perception that women will not listen, or will defy decisions made. The

activities of the nurse, in giving health and family planning talks, has fostered family planning awareness and offset taboos about discussing these issues. The frequency of such discussions remains limited however, making negotiating such matters difficult for women.

Constraints on reproductive change. The most proximate cost of contraceptive use, from the standpoint of women interviewed, is the absence of spousal support for fertility regulation. In part, this derives from fragmented communication about reproductive matters that are characteristic of polygamous societies throughout the sub-Saharan African subcontinent. But mainly, it derives from fundamental social, religious, and economic determinants. First, all problems related to contraceptive costs stem in some degree from the extreme poverty that prevails in northern Ghana. This isolates communities from extrafamilial influences, sustains traditionalism, and constrains families from committing resources to future needs. An immediate consequence of environmental circumstances and pervasive poverty is prevalent ill-health, high mortality, and perceived survival risk. The direct health costs of contraception are also high in settings where reproductive morbidity is high, educational attainment is low, and perceived health risks of contraception outweigh the benefits. Health, economic, and logistics problems exacerbate monetary costs. These costs collectively influence the views of husbands, complicating family planning negotiations between spouses. The exogenous influences of environmental, economic and health determinants are compounded by social structure, marriage customs, and the lineage system. Social structure is reflected in pronatalist religious tenets, with psychological consequences that impede spousal communication and elevate the perceived costs of fertility regulation. The true causal nexus of the factors that elevate the costs of contraception are likely to be more complex than the Figure 1.1 framework, but the implication of this framework is nevertheless apparent: The barriers to contraceptive use are systemic, interlocking, and complex. If the distribution of contraception has an impact, effects will arise not only from improving accessibility, but also from offsetting other determinants of costs. We turn next to how our outreach program may be having wide ranging systemic effects.

Implications of the Study

The Navrongo Community Health and Family Planning Project aimed to reduce supply-side barriers to contraception by increasing acceptability and accessibility of family planning by using a community-based nurse outreach scheme, thereby reducing the cost of regulation to women.

This project has been in effect for four years. Evidence suggests that the program has had some impact. Awareness and understanding of family planning has increased, contraceptives are accessible and the compound-to-compound visits and family planning talks are appreciated. There is however, a continuing unmet demand for contraception in the study area—an unfilled potential demand for fertility regulation—in part because social, psychological, and familial "costs" remain prominent. Thus there are currently married women who have indicated that they do not want any more children, yet are not using contraceptives. The impact of this program has been hampered by the deep-rooted societal factors that influence spousal communication, and increase the social, monetary, and psychological costs of fertility regulation. These factors will continue to constrain the success of family planning programs. However, there is still scope for substantial increase in fertility regulation in the Kassena-Nankana District. Changes in program strategies are needed to address some of the societal, familial, and psychological constraints, including perceived health risks and limited spousal support for fertility regulation. What is needed in the short term are strategies to intensify programs to reduce contraceptive costs, and other costs of regulation, improve awareness and motivation and expand community-based services. In the long term, strategies are needed to promote development and generate demand.

Programmatic Implications

It is clear that the new health and family planning service has had a major impact in the communities served, especially on perceptions that this program is addressing community concerns about health. Having a gender mix of providers also helps with gender-specific outreach schemes: CHO addressing the needs of women and YZ addressing specific concerns of men. In the light of the unmet need which still exists, certain changes were made in program activities before the implementation of Phase II of the project. Ideas were solicited from the focus group discussions and from the interviews.

In weighing the significance of these ideas, it is important to bear in mind how recent the program is, and the novelty of the exchanges that were pursued. Much of what is being discussed is new to respondents, and the notion of sharing advice on program design is quite unusual. Moreover, there may be a tendency for respondents to view discussion as an evaluation of CHO or YZ, leading participants to repeatedly express their satisfaction with services out of concern that criticism could lead to their redeployment or an end to the experimental program. The

community is clearly quite satisfied with both the scope and quality of the nurse's activities, and the frequency of her visits to the compounds. Although the nurse is seen by the community as both a health and family planning provider by the community, the health service delivery role elicits the greatest praise.

- ***There is a need to design diversified and culturally appropriate communication strategies.*** More education is needed to increase awareness and understanding, and to address concerns about perceived health. Since family planning is new in this community and prevalence is very low, concerns about health risks of family planning were not prominent in these discussions. Ill health is a major problem in this setting, however, and practical knowledge of family planning is very limited. It is quite important to anticipate the need for family planning knowledge and the possibility that health concerns will be associated in people's minds with family planning methods. An important target group for education is men.

The Kassena-Nankana are a group-oriented society where individuals value collective decisions and community action. For this reason, outreach to groups is quite important, particularly for young married men who are the least supportive element of society for this initiative. How should group outreach be organized, and what groups will be the most effective? A place to start is with existing groups and networks defined by age, sex, religion, or other interests. Male lineage heads, who have authority in the society, and are positively inclined towards family planning, should be used to organize group outreach to men. Findings from focus group discussions suggest an appropriate theme for reaching men: Family planning should be promoted as something wise to do. A sensible man in today's world has few children and educates them well. Prestige comes from having few rather than many. Communication methods for family planning education should include films and plays, with actors from the communities. These methods, suggested by CHO, have been used in awareness campaigns, and proved effective reaching rural communities.

- ***Develop gender-specific distribution channels.*** In order to reach women, there is the need for gender considerations in defining the environment for distributing family planning supplies. Men and women are comfortable with family planning discussions at durbars. The project legitimized family planning for men by distributing it in a man's place; the durbar. As a result men find distribution of family planning supplies at durbars acceptable. Open public distribution of contraceptives to women is not yet acceptable; it is a source of embarrassment for both men and women. Condoms can be distributed to men in public but for women the project should consider a more private approach; visiting them individually and discretely offering contraceptives.

- ***Broaden the method mix.*** For women, who do not make their own fertility decisions but have to negotiate with men, the cost of this negotiation is very high. Sometimes, practicing family planning without consent can result in divorce. For such women, it is suggested that methods be offered that do not interfere with normal bleeding patterns and are non coitus-related. The project should consider including some of these methods and expanding the choice of methods for all.

Most of the contraceptives are at convenient locations within the community. Only surgical methods are not offered in the communities but at the Navrongo War Memorial hospital. This has addressed limited access to supply points and offset the time and cost resulting from the geographical isolation. NORPLANT® has been added to the methods offered to women. By offering a wider mix of methods, perceived constraints on choice will be addressed:

- ***Expand adolescent services.*** The project has targeted married women only. Given the high rate of school dropouts, teenage pregnancy, and high rate of post-abortion complications appearing in the district hospital, adolescents should be included for contraceptive counseling and other health services. Discussants in male focus groups talk of trying to discuss family planning with their young girlfriends but this is discouraged by the girl's parents. By addressing this population, it will improve the chances of their making informed choices, and having healthy babies.

Conclusion

Assessing Community Reactions to the Pilot Project

A series of focus group studies were conducted at the end of the pilot to assess community reactions to the CHO community service program and the Zurugelu approach. General reactions to the scheme are, as follows:

- **All age groups of women and men were supportive of the CHO program.** Expected opposition from men never arose. Concerns about community opposition to the program have proved to be unfounded.

- **Respondents are particularly appreciative of health service outreach.** CHO are viewed as people who care about the community, providing services that are very much in demand.

- **The Navrongo system has restored credibility to community volunteer workers.** Focus group respondents characterize the YZ as a volunteer who cures sick people. In baseline appraisals, VHW were characterized as drug peddlers who gave injections for a fee. YZ are linked with the role of CHO and appreciated for improving the accessibility of low cost essential drugs.

This chapter presented findings from a focus group study of community reactions to the pilot project. From these reactions, lessons have been learned about which direct changes should be made before Phase II of the project is initiated. It is clear that in the African context, although social structures and beliefs present barriers to reproductive change, the community structures and social networks are powerful forces that can be marshaled for the support of programs, if dialogue is fostered with communities. Results of the experiment and the lessons learned from the assessment has implications for the design and implementation of family planning programs in African environments with constrained demand, dispersed settlements, and limited economic activities. Programs can be adapted to suit other environments with similar social structures.

Notes

1. Although not discussed, a wife having multiple births is an event not looked forward to. This could be due to the financial burden of catering for more than on baby at a time, or negative beliefs about multiple births (see Fayorsey et al. 1994).

Chapter 6

Early Impact

Introduction

The CHFP has been launched as a two-phased program of experimental research designed to test the demographic impact of convenient community health and family planning services on fertility and mortality rates in a rural impoverished population of northern Ghana. A first phase, extending over the 1994-1995 period, employed social research in a three-village program of community-based strategic planning. In 1996, a second phase was launched consisting of a large-scale factorial trial of operational strategies developed in Phase I. This chapter presents findings from an appraisal of the initial impact of the scaled-up experiment. The chapter begins with a review of methodological issues in assessing impact. Next, MIS data are presented reporting the volume of care provided by workers of the primary health care program. Third, we assess the impact of project activities on contraceptive knowledge, reproductive preferences, family planning practice, and fertility. The chapter concludes with a synopsis of the implications of reported findings.

Impact of the CHFP on the Volume of Ambulatory Care

The DHMT compiles data on the volume of ambulatory care services at all facilities in the district. This is recorded on data entry sheets, aggregated by illness treated, and reported to the Regional Health Administration on a monthly basis. Archival reporting sheets have been computerized and analyzed for the calendar 1993 to 1997 period. Since treatments correspond to clinic catchment areas, time series data on routine reports portray the impact of the project on the volume of health services. Figures 6.1 to 6.4 show trends in outpatient coverage by Cell by quarter for ordinal quarters since 1993. Third-degree polynomials have been fitted to raw data to facilitate interpretation of trends over time.

The Comparison Area, Cell IV. The Cell IV volume of care shows no pattern of change over time. There is no increase in volume; rather there is a discernible decrease over the period of observation (Figure 6.1).

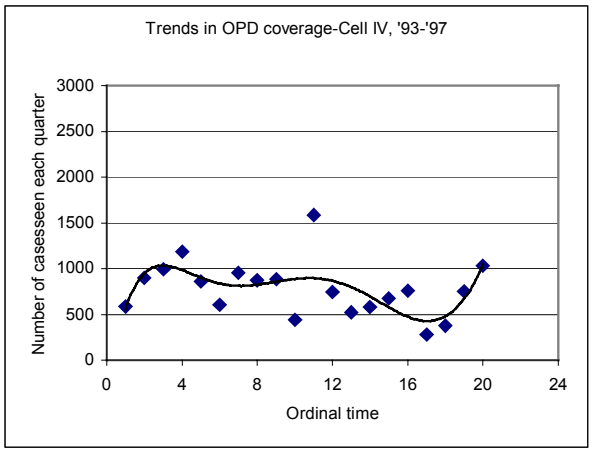


Figure 6.1 Trends in outpatient coverage by ordinal quarter, Cell IV, 1993-97

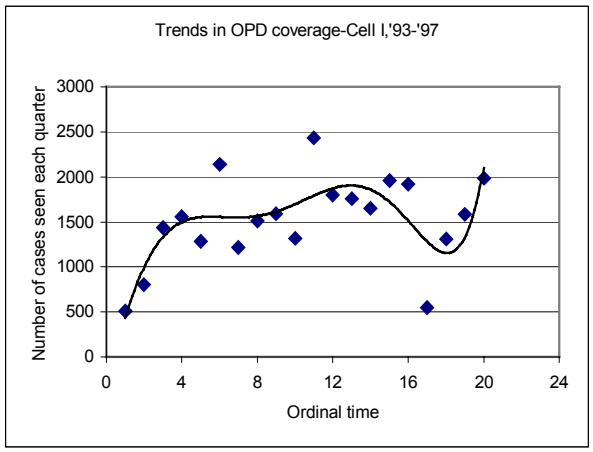


Figure 6.2 Trends in outpatient coverage by ordinal quarter, Cell I, 1993-97

Cell 1. Figure 6.2 shows trends in the volume of ambulatory care services delivered at the Paga Health Centre catchment area (Cell I). This high service volume clinic is situated near the Ghana-Burkina Faso where access roads are excellent, civil service employees are resident, and where modern amenities such as electricity and potable water have been developed. The onset of *zurugelu* activities and YZ deployment was in full operation by September 1995, which corresponds to ordinal time 11 on the X axis) but has not had massive increase in the volume of ambulatory care. Although YZ treat minor ailments, their reports are not yet incorporated into the Health Centre reports. As a consequence, the time series in Figure 6.2 reports no evident effects of the experiment on health care delivery.

Cell II. Figure 6.3 portrays a lower volume of care than Cell I caseloads. CHO deployment was fully effected by September 1996, which corresponds to ordinal quarter 15 on the chart. There is a discernible increase in volume of ambulatory care but further observation is required before definitive conclusions can be drawn.

Cell III. Figure 6.4 shows a marked upward trend in Cell III in the volume of ambulatory care provided. Full-scale coverage in this cell was effected in September 1996 (ordinal time 15).

In conclusion, there is no definitive evidence at this stage that the experiment has had an impact on the volume of health care. Deployment of the packages of service delivery may have had an impact in Cell III, but has had no evident effect in Cells I or II. Much work needs to be done to incorporate YZ outputs into the formal system of reporting by the DHMT so that the full

effect of volunteer services is known. On the other hand, CHO reports find their way into the DHMT reporting system, and this is reflected in the modest beginnings of an increase in volume of service in Cell II and a marked increase in Cell III.

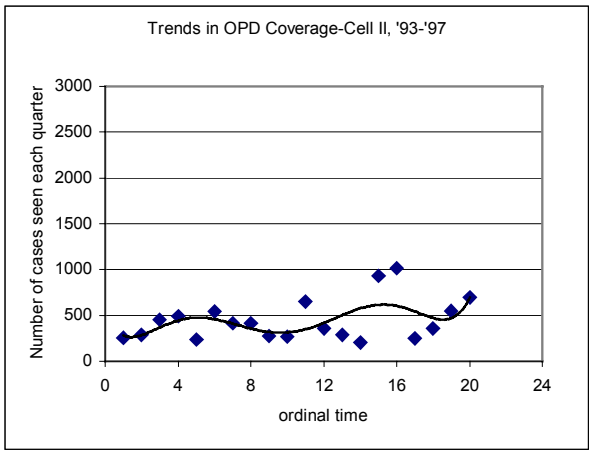


Figure 6.3 Trends in outpatient coverage by ordinal quarter, Cell II, 1993-97

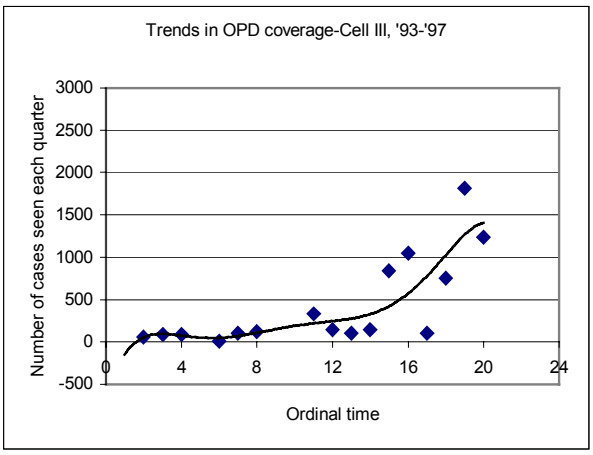


Figure 6.4 Trends in outpatient coverage by ordinal quarter, Cell III, 1993-97

Methodology

Analysis of CHFP results must address the question: What is the net impact of exposure to the three alternative treatment cells? In keeping with the framework presented in Figure 1.1, we seek estimates of impact at different stages in the process of reproductive change; therefore, investigation examine the impact of the experiment on knowledge of contraception, reproductive preferences, intentions to use, contraceptive practice, and fertility. While tabulation of panel data is informative in addressing this aim, the possibility remains that crude tabulation of data by experimental cell can distort estimates of the impact of the experiment. Adjustments are required in this analysis because inherent biases arise from crude tabulation:

- **Social conditions differ by cell.** Social conditions, such as educational attainment, economic activity, and exposure to external ideas, differ by treatment area, suggesting that the baseline climate of demand for contraception may differ by cell. It is important to adjust for background characteristics of the study population so that these differences do not contaminate estimates of impact.

- **Baseline levels of contraceptive use differ by cell.** Contraceptive use in 1993 was low in all four experimental areas. However, statistically significant differences are evident: Cell IV had a relatively low baseline prevalence rate in comparison to all other experimental cells.

- **Exposure to experimental operations varies by village.** The timing of the onset of experiment services has differed markedly within areas. It is necessary to control estimates for variation in the timing of project implementation, and hence exposure to project activities.

- **Panel data may be intrinsically biased.** Longitudinal interviews inform respondents about matters that research is intended to measure. This is particularly problematic for measures of contraceptive knowledge, since awareness of contraception in one round of interviewing may be informed by questions asked in previous rounds. It is important to model relative change in impact rather than to assess crude levels of indicators.

To address these problems, it is necessary to estimate a change model that adjusts for demand and differential exposure with a regression approach, as follows:

$$Logit\, C_{IJT} = \alpha + \beta \sum_{i=1}^{I} X_i + \delta \sum_{j=1}^{J} Z_j + \gamma \left(\sum_{i=1}^{I} X_i \bullet \sum_{j=1}^{J} Z_j \right) + \sum_{k=1}^{K} \xi_k W_k + \eta_b \qquad (1)$$

where,

C_{IJT} is the indicator of contraceptive use associated with the end of observation, round T of the Panel Survey, for the I person-years of exposure to the "bureaucratic dimension" of the experiment and the J person-years of exposure to the *zurugelu* dimension;

X_i represents the ith combined indicator of CHO, CHC, and other MOH mobilization characteristics;

Z_j defines the jth person year of months of operation of experimental activity of *zurugelu* activity;

W_k defines the kth respondent background characteristic.

Unknown parameters, α, β, γ, δ, ξ, and η are estimated by maximum likelihood. The parameters β, γ, and δ assess the net impact of the experiment under the null hypothesis that parameters of treatment cells are zero. The parameter δ represents a control for contraceptive use in the baseline appraisal.

The model in equation (1) is general to the problem of examining the impact of the experiment on knowledge, preferences, or contraceptive use. It allows for the fact that experimental activity has been phased in over time, exposing some villages to the experiment before others have encountered the CHFP. The vector W defines educational attainment, age, and other characteristics of individuals which affect contraceptive use, and vary by cell, and therefore could contaminate results.

Impact of the Experiment on Contraceptive Knowledge

Trends in contraceptive knowledge, reported in Tables 6.1 and 6.2, exhibit relationships that are somewhat puzzling, but plausible when weighed in reference to other project data and research findings. First, we describe these counterintuitive results, and then posit possible interpretations. Table 6.1 reports trends in "spontaneous knowledge" by cell. Spontaneous knowledge is derived from the question:

> *Now I would like to talk about family planning and the various ways or methods that a couple can use to delay or avoid pregnancy. Which methods have you heard about?*

Table 6.1 Spontaneous knowledge of at least one modern contraceptive method among currently married women ages 15-49 by cell, 1993-1997

Year	*Cell I*	*Cell II*	*Cell III*	*Cell IV*	*Navrongo town*
1993	59.7	52.5	39.6	35.8	—
1995	56.7	51.7	45.0	35.9	—
1996	67.9	69.5	71.8	51.8	83.6
1997	70.9	47.9	63.0	46.8	77.4

Any method mentioned spontaneously, without prompting, is assumed to be a method known to respondents. As Table 6.1 shows, levels of spontaneous knowledge increased in all experimental areas except in Cell II. Moreover, marked treatment differences in baseline and final survey knowledge are evident. Contraceptive knowledge is most extensive in Cell I. Much of the population of this area is located on the Navrongo-Burkina Faso road where markets, transportation, and communication are relatively developed. Several Cell III villages are located near Navrongo town, and this may contribute to the increase in knowledge in that area. Trends are nonetheless indicative of possible differential treatment effects. Cell II exhibits no upward

trend; Cell I and Cell IV modest increases; Cell III registered a pronounced change in knowledge.

Table 6.2 examines trends in general knowledge obtained by following the spontaneous knowledge question with prompts about each modern "Western" method. As the Table 6.2 data show, prompted knowledge of at least one modern method was high in Kassena-Nankana District, even before experimental activity. However, in Cell II, a puzzling trend is evident: general knowledge *declined* slightly with time, from 95.1 percent in the baseline to 88.4 percent in 1997. Declines in knowledge of supply sources are also evident among Cell II respondents even though Cell II households were visited regularly by CHO (Table 6.3).

Table 6.2 General knowledge of at least one modern contraceptive method among currently married women ages 15-49 by cell, 1993-1997

Year	*Cell I*	*Cell II*	*Cell III*	*Cell IV*	*Navrongo town*
1993	91.0	95.1	87.2	82.3	—
1995	94.1	93.5	91.0	85.4	—
1996	96.0	93.4	97.0	91.2	99.6
1997	95.6	88.4	93.3	85.7	98.6

Table 6.3 Knowledge of a supply source of at least one modern contraceptive method among currently married women ages 15-49 by cell, 1993-1997

Year	*Cell I*	*Cell II*	*Cell III*	*Cell IV*	*Navrongo town*
1993	77.3	70.9	52.2	58.4	—
1995	81.8	70.0	71.5	71.6	—
1996	90.0	81.9	90.1	77.4	98.2
1997	88.8	67.5	80.8	62.7	94.4

To examine the issue of the source of declining knowledge in Cell II further, we estimate model (1) for the determinants of change in knowledge. Regression results are consistent with the trends presented in Tables 6.2 and 6.3 (Table 6.4). Odds ratios show that the odds of spontaneous knowledge decreases as age increases, if baseline knowledge is controlled. This puzzling result suggests that knowledge deteriorated with time as age increased. More readily explainable are the effects of surviving children (a weak positive effect) and educational attainment (a two-fold increase in the odds of contraceptive knowledge). Similar effects are noted for the background characteristics on general knowledge. Increasing age is associated with *deteriorating* knowledge over the study period while other effects are positive. Background

characteristics also exhibit net positive influences on knowledge of supply sources, with the exception of age.

Table 6.4 Multiple logistic regression odds ratios for the effects of exposure to CHO and YZ on contraceptive knowledge, controlling for background characteristics of respondents, among currently married women ages 15-49

Covariate	*Spontaneous*	*General*	*Know a supply source*
Background characteristics			
Age	0.96**	0.97**	0.96**
Children surviving	1.16**	1.27**	1.20**
Wive's educational attainment	2.05**	2.21**	1.71**
Knowledge in 1995	2.51**	3.33**	2.36**
Treatment effects			
CHO exposure	0.89**	0.98	1.00
YZ exposure	1.29**	1.44**	1.79**
Joint effect	1.18**	1.36	1.60**
Comparison	1.00	1.00	1.00
Number of observations	2867.00	2867.00	2867.00
Chi square (d.f.)	335.89** (7)	135.11** (7)	275.54** (7)
Pseudo R^2	0.0865	0.0767	0.0862

Notes: Independent variables are from the 1997 Panel Survey; **p < .001.

Treatment effects are shown in the bottom panel of Table 6.4. The most surprising finding is the effect of exposure to nurse visitation. A person-year of exposure to CHO visitation *reduces* the odds of spontaneous knowledge and general knowledge and has no impact on knowledge of a supply source. Conversely, exposure to *zurugelu* activities increases spontaneous, general, and supply-source knowledge. CHO-Zurugelu interaction effects are negative, suggesting a diminishing return from joint activities. These findings lead to a fundamental question about the role of the experiment: Does household visitation by trained health workers actually *diminish* contraceptive knowledge? Observational work, field supervision, and focus group studies all indicate that most nurses visit households and that exposure to family planning messages and ideas has been greatly expanded, even in Cell II areas where knowledge is reported to have declined.

A possible explanation of negative effects relates to the high incidence of denial of family planning among users, spousal secrecy, and mistrust about family planning, and the possible differential effects of service delivery on spousal interaction. Work on the denial issue is still in progress, but persuasive evidence exists that denial of contraceptive use among contracepting

survey respondents is common (Phillips et al. 1997). Contraception remains a sensitive issue in many households, and men are often hostile to the concept of fertility regulation. It is possible that experimental activities targeted toward men have had an impact on survey responses. Rates of denial of use among contracepting women may differ in areas where men are involved in the program from responses obtained in areas where men's concerns are not addressed.[1] In Cell II, where scant attention is paid to community mobilization and male participation, denial of knowledge may increase as a result of project activity. In Cells I and III, where *zurugelu* activities are focused on male leaders and household heads, denial may diminish with time owing to the diminishing concerns of men.[2] This explanation remains an hypothesis at this stage in the investigation and merits further investigation.

Reproductive Preferences

The *zurugelu* package of durbars, outreach, and volunteer activity of the CHFP may have introduced new ideas, preferences and intentions among the Kassena-Nankana that are not effectively introduced by nurses working alone. To examine this issue, questions on reproductive preferences have been tabulated by experimental cell in Tables 6.5 and 6.6.

Table 6.5 Desire for an additional child among currently married women ages 15-49 by cell, 1993-1997

Year	*Cell I*	*Cell II*	*Cell III*	*Cell IV*	*Navrongo town*
1993	52.0	63.8	55.0	68.9	—
1995	73.0	73.0	69.2	72.6	—
1996	71.1	71.4	70.3	73.6	61.1
1997	69.1	62.0	67.6	70.5	57.6

As Table 6.5 demonstrates, a majority of all respondents want an additional child. In general, no clear trend is evident over time, although in the three experimental treatment areas the pattern is curvilinear. The proportion wanting an additional child increased initially but subsequently declined. The desire to space future childbearing has nonetheless been constant, apart from a marked decline in 1997 in the proportion who want to space future childbearing and corresponding increase in 1997 in the proportion who say they want another child soon (Table 6.6). This suggests that project activities may foster new reproductive planning.

Table 6.6 Desire to space future childbearing among currently married women ages 15-49, by experimental cell, 1993-1997

	Year			
Experimental cell	*1993*	*1995*	*1996*	*1997*
YZ only				
Limit	37.2	16.4	21.4	23.4
Space	45.6	62.1	48.9	43.3
Other	17.2	21.5	29.7	33.3
CHO only				
Limit	19.9	13.5	19.9	24.1
Space	48.0	60.2	47.3	32.3
Other	32.1	26.3	32.8	43.6
CHO & YZ				
Limit	24.2	20.0	21.0	25.7
Space	42.1	55.6	45.8	45.0
Other	33.7	24.4	33.2	29.3
Regular MOH				
Limit	17.0	13.3	11.6	20.3
Space	51.9	60.3	48.2	49.4
Other	31.1	26.4	40.2	30.3
Navrongo town				
Limit	—	—	32.1	36.4
Space	—	—	36.4	29.9
Other	—	—	31.5	33.7

Note: Other refers to women who either want a child soon or are unsure.

Table 6.7 presents results of a multinomial logit regression which tests the hypothesis that experimental exposure has altered reproductive preferences by introducing new ideas and concepts into the study area. Coefficients and odds ratios lend support to this hypothesis. Where nurses work in conjunction with *zurugelu* activities, there is a modest positive effect on the odds of wanting to limit childbearing in the future. There is evidence of diminishing odds of wanting to space future childbearing in all treatment areas. Thus, new concepts of limiting fertility have been introduced at the expense of the motivation to space childbearing.

Table 6.8 examines the proposition that intentions to use contraception may increase with time owing to the new ideas and services introduced in a locality by experimental activity. This relationship is evident in Table 6.8 trends for the proportion of noncontracepting women who intend to use in the future. Cells I and III exposure is associated with increasing proportions who intend to use. Cell II exposure diminished stated intentions to use. Cell IV exhibits no evident trend.

Table 6.7 Multinomial logistic regression odds ratios for the effects of exposure to CHO and YZ on the desire for no additional children and the desire to space childbearing versus wanting more soon or unsure, controlling for background characteristics of respondents, among currently married women ages 15-49

	Want no more		*Want to space*	
Covariate	*Coefficient*	*Odds ratio*	*Coefficient*	*Odds ratio*
Background characteristics				
Age	+0.05**	1.06	-0.11**	0.90
Children surviving	+0.47**	1.60	+0.27**	1.31
Wive's educational attainment	-0.03	0.97	-0.04	0.96
Want no more in 1995	+0.91**	2.49	-0.15	0.86
Want to space in 1995	-0.24	0.78	+0.23**	1.26
Treatment effects				
CHO exposure	-0.05	0.95	-0.338**	0.71
Zurugelu exposure	+0.04	1.04	-0.170*	0.84
Joint effect	+0.08*	1.07	-0.184**	0.72
Number of observations	2867.00			
Chi square (d.f.)	1198.30			
Pseudo R^2	(16)**			
	0.192			

Notes: Independent variables are from the 1997 Panel Survey; *p <.05; **p < .001.

Table 6.8 Intention to use family planning among currently married women ages 15-49 who are not using a method by cell, 1993-1997

Year	*Cell I*	*Cell II*	*Cell III*	*Cell IV*	*Navrongo town*
1993	54.1	61.8	51.0	43.5	—
1995	54.0	69.3	63.9	50.3	—
1996	67.1	58.0	73.9	47.4	64.5
1997	64.8	52.5	66.0	44.1	70.1

Table 6.9 Multiple logistic regression odds ratios for the effects of exposure to CHO and YZ on intention to use modern contraceptives, controlling for background characteristics of respondents among currently married women ages 15-49

Covariate	*Odds ratios*
Background characteristics	
Age	0.91**
Children surviving	1.23**
Wive's educational attainment	1.10
FP intention in 1995	3.12**
Treatment effects	
CHO exposure	1.04
YZ exposure	1.49**
Joint effect	0.94
Intercept	1.798**
Number of observations	2263
Chi square (d.f.)	444.08 (7)
Pseudo R^2	0.1425

Notes: *p <.05; **p < .01.

Table 6.9 examines the impact of experimental activity on contraceptive intentions, by estimating a regression model for the determinants of change in contraceptive use intentions, controlling for intention in 1995. Results indicate that exposure to *zurugelu* activities tends to increase the desire to use contraceptives. Number of surviving children and intention to use in 1995 also tends to promote the desire to use contraceptives. On the other hand, age level impacts negatively on contraceptive use intention.

Use of Contraception

Trends in contraceptive use (ever use of modern contraceptives, current use of any contraceptive, and current use of modern contraceptives) are reported in Tables 6.10, 6.11, and 6.12, respectively. Marked increases in contraceptive behavior are evident in study areas where *zurugelu* activities are in progress. As the tables show, this trend is due to injectable contraceptive use rather than pill use (Table 6.10). By 1997, all-method prevalence had increased

Table 6.10 Ever use of modern contraceptive methods among currently married women ages 15-49 by cell, 1993-1997

	Year			
Experimental cell	*1993*	*1995*	*1996*	*1997*
Cell 1				
Pill	10.4	11.6	10.6	12.9
DMPA	5.5	10.7	13.8	17.6
Any modern method	17.4	23.1	26.8	29.4
Cell II				
Pill	9.6	7.8	6.9	5.2
DMPA	8.1	9.0	10.1	10.9
Any modern method	16.3	16.7	16.0	15.9
Cell III				
Pill	9.5	10.0	11.2	8.9
DMPA	5.2	10.4	16.1	18.7
Any modern method	14.6	20.3	26.5	27.5
Cell IV				
Pill	3.8	4.3	3.4	4.5
DMPA	1.8	3.0	4.3	5.4
Any modern method	6.2	7.7	8.2	9.1
Navrongo town				
Pill	—	—	34.3	35.9
DMPA	—	—	22.5	25.0
Any modern method	—	—	53.9	58.3

Note: DMPA (Depot medroxy progesterone acetate).

to nearly 20 percent in Cell III (Table 6.11); modern Western method use had increased to over 10 percent in Cells I and III; no change was noted in the comparison area, and method use actually declined slightly among Cell II respondents (Table 6.12). Changes that are noted are almost entirely due to increased injectable-method prevalence.

Table 6.11 Current use of any contraceptive method among currently married women ages 15-49 by cell, 1993-1997

	Year			
Experimental cell	*1993*	*1995*	*1996*	*1997*
Cell I	6.2	12.7	17.5	14.0
Cell II	8.6	6.3	7.3	6.7
Cell III	4.3	9.3	14.3	17.1
Cell IV	1.0	4.0	4.4	9.9
Navrongo town	a	a	22.5	38.5
Totals	a	a	10.8[b]	

Note: a) Navrongo town was not included until 1996; b) Excluding Navrongo town

Table 6.12 Current use of modern contraceptive methods among currently married women ages 15-49 by cell, 1993-1997

	Year			
Experimental cell	*1993*	*1995*	*1996*	*1997*
Cell I				
Pill	2.0	2.7	2.2	0.8
DMPA	2.9	6.2	7.4	7.7
All	5.9	11.4	12.4	10.3
Cell II				
Pill	2.0	0.5	0.7	0.8
DMPA	4.4	3.6	4.1	5.0
All	6.9	5.2	5.5	6.2
Cell III				
Pill	1.0	2.0	1.6	1.4
DMPA	1.8	4.1	5.8	8.4
All	3.7	7.2	9.6	11.3
Cell IV				
Pill	0.2	0.3	0.6	0.6
DMPA	0.6	1.4	1.7	2.2
All	0.8	2.2	2.8	3.2
Navrongo town				
Pill	—	—		
DMPA	—	—	6.4	10.8
All	—	—	17.1	27.1

Table 6.13 estimates Model (1) net effects of treatment exposure. Coefficients assess the effect of a person-year of project exposure on the log-odds of use; odds ratios examine project effects on the odds of use in 1997—controlling for baseline contraceptive behavior in 1994.

Table 6.13 Multiple logistic regression odds ratios for the effects of exposure to CHO and YZ on use of any modern method, controlling for background characteristics of respondents, among currently married women ages 15-49

Covariate	*Coefficients*	*Odds ratios*
Background characteristics		
Age	-0.04**	0.96
Children surviving	+0.29**	1.34
Wive's educational attainment	+0.65**	1.92
Using in 1994	+1.47**	4.36
Treatment effects		
CHO exposure	+0.27**	1.30
YZ exposure	+0.48**	1.62
Joint effect	-0.08*	0.93
Intercept	-3.141**	
Number of observations	3435	
Chi square (d.f.)	183.1 (7)**	
Pseudo R^2	0.09	
Notes: *p <.05; **p < .01.		

Results suggest that all treatment conditions are contributing to growing contraceptive use, although effects are substantially greater in areas where *zurugelu* activities are operating. For every year of exposure to CHO outreach, use odds increase 1.3 fold; the corresponding effect of a person-year of *zurugelu* exposure is a 1.62-fold effect on the odds of use. The negative sign on the joint effect coefficient suggests that a diminishing return arises from exposure to CHO and YZ; in terms of the log odds, the outcome of exposure to both types of outreach workers is slightly less than the sum of their independent effects ($e^{+.2559 + .4797-0.0858} = 1.93$). However, this joint effect is not substantial. Combining a person-year of exposure to CHO outreach with *zurugelu* activities is associated with a slight reduction in the odds of use.

The implications of the Table 6.13 results can be assessed by transforming effects into the probability metric in the manner implied by model (1). For example, the Cell IV expected prevalence rate in 1997, controlling for social and economic conditions, is estimated by summing the product of coefficients and sample means:

$$C_{97} = \{1 + \exp[-(-3.1407 + (1.47 \cdot 0.035) - (0.04 \cdot 34.7) + (0.289 \cdot 3.18) + (0.651 \cdot 0.274))]\}^{-1} = 0.0330.$$

The treatment effects are estimated by including a year of CHO exposure, or a year of *zurugelu* exposure, or all effects plus a year of joint exposure. This procedure estimates Cell I, II, and III net annual exposure effects, controlling for baseline conditions. Using this logic, the expected annual increase in the modern method prevalence rate is 0.0305, 0.0200, and 0.0394 for Cells I, II, and III, respectively. Expressed as a difference with Cell 4, the expected net incremental change in prevalence is 0.0195, 0.009, and 0.0284. That is, when villages are exposed to experimental activity, prevalence is expected to increase by nearly two percentage points more each year in Cell I than in comparison areas, about one point in Cell II areas, and nearly three points in Cell III areas, controlling for baseline social conditions and contraceptive use levels.

Results indicate, in summary, that the CHFP has begun to affect reproductive behavior in the Kassena-Nankana District. Knowledge about and use of modern contraception is increasing and modest changes have occurred in reproductive preferences. Not all reported changes are consistent with *a priori* expectations, however. Changes in reproductive preferences suggest that new attitudes about child limitation have been associated with pronounced declines in the desire to space future childbearing and an increase in the odds of wanting a child soon.

Trends recorded in Cell II represent a consistent anomaly. Knowledge declines in ways that are counterintuitive; Cell II effects on reported use are marginal. Taken at face value, these findings suggest that nurse-only outreach is a failure and that successful introduction of family planning among the Kassena-Nankana requires *zurugelu-like* community mobilization activities. Caution must be exercised in interpreting results, however.

Fertility Impact

The CHFP has been fielded as a test of the impact of community health and family planning services on fertility. Table 6.14 reports trends in average annual fertility rates over time. Since services were scaled up over the October 1995 to July 1996 period, the July to June 94-95 annual rate represents a baseline assessment. When allowance is made for the nine-month gestation period, only minor effects of micro-pilot activity could arise in the 1995-96 period. Thus, July 1996-June 1997 represents a preliminary impact observation period in which most project-related contraceptive use could not yet have had a fertility impact. Nonetheless, a downward

trend is discernable, as illustrated by Figure 6.5. Fertility levels in the comparison area have not declined, however, in all treatment areas downward trends have emerged.

Table 6.14 Age-specific and total fertility rates for July-June twelve month periods, 1994-1997, Navrongo Demographic Surveillance System

		Age groups						
Experimental cell	*TFR*	*15-19*	*20-24*	*25-29*	*30-34*	*35-39*	*40-44*	*45-49*
Cell I								
1994-95	5.1	101.0	233.2	240.3	186.3	143.0	72.9	36.4
1995-96	4.8	105.1	206.9	215.6	176.9	145.6	83.3	29.7
1996-97	4.6	97.2	214.5	199.4	192.4	121.1	61.8	23.7
Cell II								
1994-95	5.7	119.1	259.9	248.6	241.0	162.6	76.3	42.2
1995-96	5.4	113.3	266.8	257.7	192.0	144.0	62.6	40.6
1996-97	5.0	115.7	242.3	230.9	201.2	127.1	70.0	22.2
Cell III								
1994-95	5.0	67.3	224.6	235.9	215.6	149.4	82.8	20.6
1995-96	4.9	74.7	223.1	217.5	203.1	157.3	63.4	38.7
1996-97	4.7	87.0	223.9	214.0	173.8	149.4	67.5	24.3
Cell IV								
1994-95	5.3	87.3	222.7	233.0	219.7	170.6	101.0	33.6
1995-96	4.9	66.5	219.0	220.8	205.8	146.7	79.8	34.3
1996-97	5.2	74.0	223.3	234.1	222.7	154.9	87.8	46.2
All cells								
1994-95	5.3	88.4	235.2	240.8	217.0	159.4	87.0	30.9
1995-96	5.1	85.1	234.2	232.7	200.8	150.4	74.2	37.3
1996-97	5.0	90.9	231.2	224.7	202.5	145.3	75.1	31.8

Source: NDSS database, May 1998

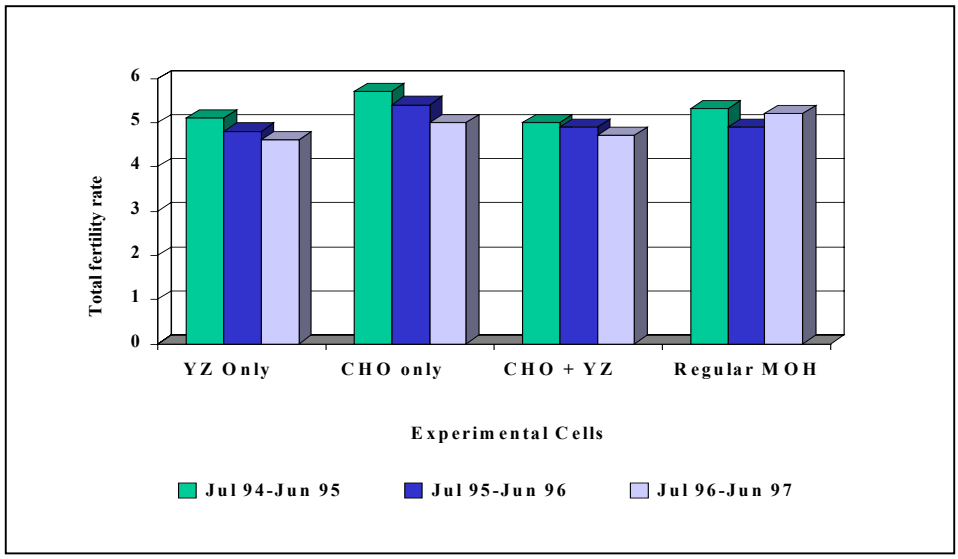


Figure 6.5 Trends in TFR by cell, July 1, 1994-June 30, 1997

Figure 6.6 presents Table 6.14 age-specific fertility rates for the baseline period and the final ordinal year. As the figure shows, age-specific fertility patterns in the comparison area closely coincided in the baseline and follow-up periods but diverged in treatment areas in a manner that is consistent with the onset of reproductive change. Somewhat puzzling, however, is the observation that Cell II (CHO only) fertility effects are somewhat more pronounced than changes observed in Cell III (CHO & YZ). This is inconsistent with cell differential patterns of contraceptive use, and may provide further evidence that reproductive change is more extensive in Cell II than panel data portray. Secrecy and denial of contraceptive use may complicate interpretation of cell effects. There is little doubt, nonetheless, that the CHFP has begun to have an impact.

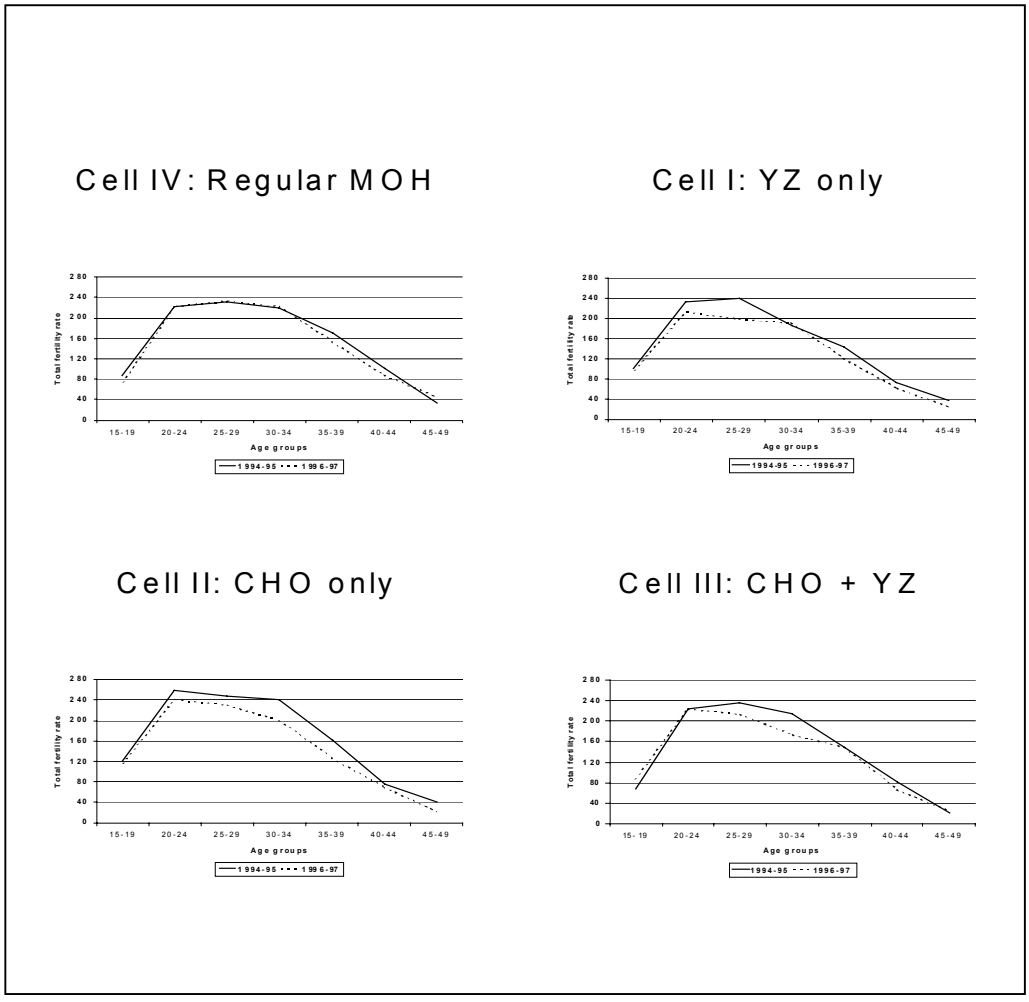


Figure 6.6 Age-specific fertility rates by experimental area, 1994-95 and 1996-97

Implications

The most important finding to emerge from this investigation is the consistent evidence that the CHFP has begun to have an impact on reproductive behavior and fertility. Results are preliminary and firm conclusions require further long term observation, but early indications are consistent with the hypothesis that CHFP services are having an impact. If current treatment differentials are sustained and amplified, project hypotheses will be upheld.

Throughout this investigation, Cell II (CHO only) findings have been anomalous and puzzling. This investigation attests to the need for further research on the effect of service provider-client relationships on survey responses. Detailed information is needed on women's responses to nurse visitation, men's reactions, and the impact of these reactions on denial of use and concealment of true knowledge, preferences, and intentions. Findings from the CHFP may have implications for the interpretation of surveys and the relevance of DHS-like interviews in Sahelian settings.

Findings may also have implications for the way in which CHO are trained, deployed, and utilized. Results that unfold in the future may have important implications for future research direction and policy:

- ***There is a need to review CHFP service quality and worker performance.*** Findings indicate a need to review CHO training and field operations. Either CHO outreach is failing to improve contraceptive knowledge or it is fostering conditions under which growing knowledge is denied. In either case, there may be a need to revise strategies for CHO outreach. *Zurugelu* effects are pronounced; CHO impact is greatly enhanced by *zurugelu* activity; CHO working alone are not particularly effective. MOH deliberations on the posting of CHO to village locations should therefore consider a role for volunteers and the need for community mobilization activities.

- ***The CHFP challenges conventional wisdom about the role of CBD.*** Community-based distribution (CBD) is often discussed as a policy to promote accessible services, as if accessibility alone is crucial to the effective strategic design of programs. CHFP results bring this perspective into question—results are most pronounced where volunteers are working, even though volunteers do not distribute the methods most commonly adopted and used. Where community institutions are mobilized and men are involved, the CHFP has had its most prominent effects. The causal role of male mobilization strategies in the CHFP impact merits careful investigation in the future.

- ***Evidence of early impact attests to the need for long-term observation.*** Early results indicate that long term observation, interdisciplinary investigation, and methodological research is

needed. Overly simplistic investigation based on single round survey data alone may lead to spurious conclusions and inappropriate policy advice since survey responses may reflect secrecy and denial rather than project impact. Navrongo research combines the use of qualitative data, MIS data, survey research and demographic surveillance into a system of investigation on basic social research methodological assumptions. Findings suggesting that fertility has begun to decline in ways that are inconsistent with contraceptive use differentials, and suggest a need for further work on the determinants of contraceptive use denial and secrecy.

The results presented in this chapter are based on full-scale experimental operation of little more than a year. Despite this short time horizon, unmistakable evidence of program impact has emerged, setting the stage for a program of investigation in the future on the nature of reproductive change and its social and health consequences.

Notes

1 Male concerns about family planning are prominent in this settings, and social discord was noted in early focus group studies (Bawah et al. 1998).

2 Roughly one in five women who are known contraceptive users in the study deny use when they are interviewed in the Panel Survey. Fully 70 percent of the husbands of known users deny that wives are using. Much of this male denial is due to lack of knowledge of wive's use; but a significant component is likely to arise from male secrecy about contraception. Focus group exchanges among men portray profound anxieties about contraceptive behavior.

Chapter 7

Cost and Effectiveness

Introduction

From the onset of CHFP field activities, care has been exercised in the monitoring of project costs so that research activities and expenditures are excluded from service delivery costs. Service delivery, in turn, has been divided into routine costs of the Ministry of Health operations in Kassena-Nankana District and the additional costs of the CHFP. This cost monitoring system permits appraisal of the costs and effectiveness conferred by the CHFP. A full analysis of the cost and effectiveness of the CHFP must await the ultimate conclusion of project work. However, even at this early stage, a cost-effectiveness analysis (CEA) can be conducted which compares each of the four strategies in operation in the Kassena-Nankana District in 1997-1998. This chapter pursues this by comparing the routine services at the health centers with costs arising from a combination of outreach services of CHO and YZ. The comparison serves to demonstrate the relative inputs and outputs of various approaches to service delivery in operation in the district. At the commencement of the CHFP program, all subdistrict-level health facilities were supported in terms of training, transportation, and some refurbishment.

The costs included in this analysis are estimated from the perspective of the service provider and exclude all CHFP research costs. The analysis proposes methods for improving the cost effectiveness of alternative strategies, either through the identification of areas where costs can be reduced or by identifying measures for improving the effectiveness of strategies. The methodology used for the analysis of costs is outlined below.

Cost Data from the CHFP

Data collection was undertaken by the NHRC in collaboration with the DHMT from the beginning of the CHFP program. Sources of information ranged from compiled financial transactions of the CHFP by the NHRC, documents furnished by the DHMT, interviews with various officials of the CHFP implementation team, DHMT, supervisors and field staff of the health centers, a purchasing officer of UNICEF in Accra, and other information obtained from the UNICEF Supply Catalogue of 1997. Data for the cost analysis were compiled for 1997, the

first full calendar year when all four experimental areas were fully operational. Costs incurred before 1997 (micropilot and scaling-up phases) have not been not included, unless they were for capital expenses that were still in use during 1997. Benefits that occurred prior to 1997 were not included.

Problems Encountered in the Collection of Cost Data

Various problems were encountered in the course of compiling cost data. Most important among them was the practice of aggregating costs. The overall activity or function costs were compiled, instead of specific input costs by activity or function. However an effort has been made to identify and cost out all major activities to the new program. The CHFP is a package of activities, and economic analysis must be limited to indicators of the cost of the package and the impact of the package.

Secondly, activities of supervisory staff were difficult to partition into Project and usual job functions. For example, the DHMT office sent staff for both routine training and supervision and incremental special project training and field supervision. However, the staff involved according to the amount of time spent on new versus usual activities was difficult to ascertain. Some of the usual supervisory activities clearly overlapped with the CHFP. Thus, the costing out of this project may underestimate the true CHFP training and supervisory costs.

Third, delays in obtaining pharmaceutical supplies and changes in CHO posting may have disrupted the CHFP on some occasions, and it is unclear to what extent this may have impacted on the program.

Finally, costs of DHMT central administration were excluded from the analysis due to lack of cost data and other relevant information required for apportioning costs to the subdistrict health centers. This is likely to be a small factor in proportion to the overall CHFP project cost, but may bias cost estimates somewhat.

Estimating Costs

The “ingredients approach” of cost analysis was used. All inputs required for service delivery were identified and valued in their 1997 prices. The proposed methodology focuses on evaluating both the financial and the economic costs of CHFP service delivery. Financial costs are transaction costs that refer to actual money expenditures or outlays made for a specific health

service.[1] On the other hand, economic costs differ from financial costs in that they represent both the financial costs and the opportunity costs input into the program rather than in their best alternative use.[2] For example, volunteer labor requires no financial outlays, but use of volunteers in a health service regimen represents an opportunity cost to society, in that the volunteers spend their time in one activity rather than an alternative endeavor (Brenzel 1997).

In this report, the total cost of service delivery was divided into recurrent and capital costs. Recurrent costs are those which are associated with the daily operation of service delivery, such as personnel, training, supervision, fuel and maintenance, social mobilization activities, drug and family planning supplies, communication, and other supplies; whereas capital or investment costs refer to costs associated with the purchase of equipment, furniture and vehicles, or construction of buildings and other supplies with useful lives of more than one year.

Capital costs were annualized using a discount rate of 3 percent (Binka et al. 1997b). Annualization involves spreading the cost of the capital item (other than land) over its useful life, but allows for the opportunity cost of tying up funds in the capital item (as reflected by the discount rate).

All costs incurred in 1998 were converted to 1997 equivalents, by deflating local costs by the Ghanaian consumer price index. The cost of imported goods was deflated by the US GDP deflator prior to their being converted to cedis at the average bank exchange rate for the year of purchase.[3] Joint costs of activities were apportioned on the basis of time spent or number of personnel involved.

A sensitivity analysis was conducted to test some of the cost assumptions (i.e. uncertain values) in order to facilitate appraisal of the generalization of results. Several values were varied for both recurrent and capital items. The discount rates were increased to 6 and 10 percent. In other calculations, CHO were assumed to be using bicycles, the training of CHFP personnel was assumed to be the same as the DHMT training schedule, and CHFP personnel were assumed to be paid their regular MOH salary only without project field allowances. A combination of these assumptions was also examined in the sensitivity analysis.

Cost Components

Incremental Recurrent Costs of the CHFP

The estimated recurrent costs of the CHFP are based on NHRC accounting records for 1997 and the first quarter of 1998. The following categories of recurrent costs have been used in this analysis:

Personnel costs. Personnel costs have two components: 1) Monthly allowances paid to community health workers; 2) Training costs and allowances paid to MOH staff by each strategic component. Some CHFP personnel were existing MOH staff (CHO and their supervisors), while others were recruited and trained by the project as new staff (volunteers, such as YZ and YN). A list of personnel in each cell was obtained. The NHRC provided information on monthly allowances paid to CHO as an additional project expense and on allowances paid to CHO and YZ during training. The costs of training and supervision are comprised of training allowances, facilitator's allowances, training materials, and occasional refreshments. The estimated total personnel cost was the sum of NHRC field allowances and retraining allowances for 1997 and the first quarter of 1998.

Vehicle operating costs. Transport costs consist of fuel and oil supplied to CHO upon requisition. The NHRC keeps records of all supplies given to CHO.

Vehicle maintenance costs. The vehicle maintenance costs are for motorbikes and bicycles. The cost includes the cost of spare parts and actual maintenance services as recorded in NHRC maintenance records of the CHFP program.

Pharmaceutical costs. Pharmaceutical costs are comprised of drug costs, other medical supplies costs, and contraceptive costs. Pharmaceutical costs attributable to the CHFP are the amounts equivalent to the total of the integrated program less MOH budget for drugs depending on the delivery strategy.

Social mobilization costs. Social mobilization activities are costs associated with meetings and discussions held with chiefs, elders, or social groups, and the direct costs of *durbars.* Costs of these activities arise in *zurugelu* cells because refreshments are sometimes offered to participants, and gifts such as chickens or small livestock are sometimes exchanged. No direct payments are made to community leaders or volunteers, however.

Other supplies & services costs. A residual costs category is comprised of the costs of field registers, other stationery, communication, and miscellaneous items such as pens and

pencils and are apportioned to the cell using the number of CHO working in each cell.

Although the total cost of telephone, facsimile, and postage services incurred by the CHFP program has been compiled by the NHRC, 10 percent of these costs have been estimated to be apportioned to the service delivery aspect of the CHFP program (i.e. CHO and YZ) and the remainder to research. This amount was allocated to each cell using the number of CHFP health personnel working in the cell.

The miscellaneous items are dry cells, kerosene, soap, etc. These costs were compiled by the NHRC and were apportioned to each cell using the number of CHO working in the cell.

CHFP Capital Costs

The capital costs in this report have two components. 1) The costs of capital investment such as motorbikes, bicycles, community health compounds, and durable household items including other supplies, etc. The cost of each CHFP capital item was compiled by analyzing project purchases. These costs have been annualized over a period corresponding to the estimated useful life of each item and costs have been discounted at a rate of 3 percent; 2) Opportunity costs associated with existing MOH pre-project capital investments. Examples of these are replacement costs of vehicles, health centre buildings, etc. The inclusion of these opportunity costs as components of the economic cost of the project was meant to show the impact of capital costs on the total cost of the project.

Assessing Cost Effectiveness

Effectiveness measures considered in this report are population coverage, patients treated, and FP clients. The net-expected contraceptive clients, estimated from regression results in Chapter 6, are the additional users expected in each cell, over and above the users that would occur in the absence of the CHFP program.

The population and compounds in each cell were obtained from the NHRC demographic surveillance system. The number of patients treated and family planning acceptors have been routinely collected for the health centers and the CHFP program by the DHMT on a monthly basis.

For this analysis, the cost-effectiveness ratios calculated are, the cost per capita, cost-per-clinical-episode treated, and cost-per-FP acceptor.[4] For instance, the cost per capita provides an

indication of the cost of providing basic health service to the community; the cost-per-clinical-episode treated provides the cost of providing basic health care to patients in the community, and the cost-per-FP acceptor shows the cost of providing basic family planning service to clients in the community.

Comparisons between cost-effectiveness ratios will be presented in tabular form. A comparison of the incremental costs and benefits between the routine program in a fixed center and a combination of fixed center and outreach provides an indication of whether treatment programs offered more service to an additional person at a lower cost than the routine services.

Sensitivity Analysis

A sensitivity analysis, which alters some of the key assumptions of the initial analysis and tests the robustness of figures will also be presented.

Results

The reorientation of the community health program in the district under the CHFP required additional funding to support both capital and recurrent items of the program. Tables 7.1 and 7.2 show the summary of the CHFP incremental financial and economic costs by strategy without the usual MOH costs. As shown in Table 7.1, the incremental financial costs range from US$5,376.67 in Cell 1 to US$50,725.00 in Cell III. If the economic costs of the program are considered, the figures in Cells I and IV increase by nearly 53 percent to US$8,213.24 and by 4.5 percent to US$52,995.86 respectively (Table 7.2).

As shown in Table 7.3, the incremental per capita expenditure over and above the Ministry basic expenditure ranges from as little as US$0.27 in Cell I to just over US$1.0 in Cell II. This compares favorably with the national average per capita expenditure on health, which amounts to US$8.50. Even the highest new incremental cost represents only 12.3% of the national average per capita expenditure.

Table 7.1 Financial costs (US$) for CHFP by cell, 1997

	Health Centre plus YZ (Cell I)		*Health Centre plus CHO (Cell II)*		*Health Centre plus CHO & YZ (Cell III)*	
Category	*Cost $*	*%*	*Cost $*	*%*	*Cost $*	*%*
Recurrent costs						
Personnel	1,064.94	19.8	10,536.28	53.9	25,034.99	49.4
Pharmaceuticals	1,513.53	28.1	1,142.05	5.8	4,608.59	9.1
Bicycle maintenance	11.99	0.2	—	—	15.98	0.0
Motorbike operation & maintenance	—	—	1,405.31	7.2	3,091.69	6.1
Training & supervision	943.54	17.5	1,209.76	6.2	3,919.52	7.7
Social mobilization	1,060.42	19.7	294.56	1.5	2,061.93	4.1
Other supplies & services	247.69	4.6	453.70	2.3	1,328.37	2.6
Sub total	4,842.11	90.1	15,041.66	76.9	40,061.07	79.0
Capital costs						
Building	—	—	1,033.08	5.3	2,272.78	4.5
Vehicle	413.98	7.7	3,186.54	16.3	7,562.37	14.9
Household supplies	—	—	139.06	0.7	305.93	0.6
Other supplies	120.58	2.2	164.99	0.8	523.75	1.0
Subtotal	534.56	9.9	4,523.67	23.1	10,664.83	21.0
Total	5,376.67	100.0	19,565.33	100.0	50,725.90	100.0

Table 7.2 Economic costs (US$) for CHFP by cell, 1997

	Health Centre plus YZ (Cell I)		*Health Centre plus CHO (Cell II)*		*Health Centre plus CHO & YZ (Cell III)*	
Category	*Cost $*	*%*	*Cost $*	*%*	*Cost $*	*%*
Recurrent costs						
Personnel	1,064.94	13.0	10,536.28	53.9	25,034.99	49.4
Pharmaceuticals	1,513.53	18.4	1,142.05	5.8	4,608.59	9.1
Bicycle maintenance	11.99	0.015	—	—	15.98	0.0
Motorbike operation & maintenance	—	—	1,405.31	7.2	3,091.69	6.1
Training & supervision	943.54	11.5	1,209.76	6.2	3,919.52	7.7
Social mobilization	1,060.42	13.0	294.56	1.5	2,061.93	4.1
Other supplies & services	247.69	3.0	453.70	2.3	1,328.37	2.6
Sub total	4,842.11	58.9	15,041.66	76.9	40,061.07	79.0
Capital costs						
Building	2,465.5	30.0	2,812.01	5.3	2,760.17	4.5
Vehicle	583.31	7.1	3,574.26	16.3	8386.78	14.9
Office supplies	16.5	0.02	147.4	0.7	309.09	0.6
Medical equipment	34.36	0.042	256.26	0.7	318.4	0.6
Hospital furniture	125.69	1.5	183.99	0.8	539.8	1.0
Household supplies	0	0	13.91		30.6	
Other supplies	145.77	1.8	202.97	0.8	584.95	1.0
Subtotal	3,371.13	40.5	7190.80	23.1	12,934.79	21.0
Total	8,213.24	100.0	22,232.46	100.0	52,995.86	100.0

Table 7.3 CHFP implementation costs and cost per capita by strategies

Strategies	*CHFP implementation cost (US$)*	*NDSS total population, 1997*	*Cost per capita (US$)*
YZ alone (Cell I)	5,376.67	20,155	0.27
CHO alone (Cell II)	19,565.33	18,603	1.05
CHO & YZ (Cell III)	50,725.90	60,421	0.84

Cost-effectiveness Analysis

Cost-effectiveness ratios relate alternative program costs to their health benefits in order to facilitate the selection of those approaches that provide minimum cost per level of output. A given cost-effectiveness ratio is estimated by dividing the total economic cost of an intervention package by a selected effectiveness indicator without regard to the alternatives. Table 7.4 shows that the combined MOH and CHFP costs range from US$50,432.88 in Cell IV to the highest of US$75,835.7 in Cell III. The overall program cost per capita for the general population ranges from US$1.24 in Cell IV to US$3.22 in Cell II. Thus, if coverage and quality can be ignored, Cell IV is the least expensive package of health care services among the options tested.

Table 7.4 Economic costs (US$) of MOH program and CHFP by cell, 1997

	Paga (Cell I)		*Chiana (Cell II)*		*Navrongo (Cell III)*		*KNE (Cell IV)*	
Category	*Cost $*	*%*	*Cost $*	*%*	*Cost $*	*%*	*Cost $*	*%*
Recurrent costs								
Personnel	15,058.34	28.0	24,529.68	40.9	39,028.39	51.5	21,559.91	42.7
Training & super.	1,015.08	1.9	1,281.30	2.1	3,991.06	5.3	58.13	0.1
Pharmaceuticals	5,490.39	10.2	5,118.91	8.5	8,585.45	11.3	3,982.98	7.9
Bicycle main.	12.66	0.0	1.34	0.0	31.96	0.0	0.67	0.0
Motorbike operation & maintenance	397.90	0.7	1,686.37	2.8	3,372.75	4.4	281.06	0.6
Social mobilization	1,060.42	2.0	294.56	0.5	2,061.93	2.7	—	—
Office supplies	274.56	0.5	215.35	0.4	323.34	0.4	288.39	0.6
Other supplies	3,006.03	5.6	3,212.04	5.4	4,086.71	5.4	2,239.77	4.4
Sub total	26,315.38	48.9	36,339.55	60.6	61,481.59	81.1	28,410.91	56.3
Capital costs								
Building	24,654.72	45.9	17,790.11	29.7	4,874.74	6.4	15,861.17	31.5
Vehicle	1,693.32	3.1	3,877.21	6.5	8,244.13	10.9	656.67	1.3
Office supplies	165.27	0.3	83.45	0.1	31.58	0.0	4,000.54	7.9
Medical equipment	178.65	0.3	1,172.88	2.0	124.69	0.2	874.68	1.7
Hospital furniture	511.19	1.0	190.04	0.3	160.55	0.2	516.90	1.0
Household supplies	—	—	139.06	0.2	305.93	0.4	—	—
Other supplies	251.89	0.5	379.79	0.6	611.96	0.8	112.01	0.2
Subtotal	27,455.04	51.1	23,632.54	39.4	14,353.58	18.9	22,021.97	43.77
Total	53,770.42	100.0	59,972.09	100.0	75,835.17	100.0	50,432.88	100.0

The effectiveness measures of the program are shown in Tables 7.5 and 7.6. The most important intermediate effectiveness measures for the program were cost per episode treated and cost per family planning program acceptor recruited. The results show that the cost per clinical episode treated ranges from US$2.24 in Cell I to US$2.70 in Cell III, suggesting that Cell I could be relatively the most cost-effective community health service delivery strategy. Treatment

differences in the cost per clinical episode are consistently less than $0.50, indicating that the cost-effectiveness of treating patients is about the same irrespective of cell.

Table 7.5 Indicators of effectiveness by cell

Number/Strategy	*Cell I*	*Cell II*	*Cell III*	*Cell IV*	*Total*
All NDSS women	10,807	9,467	31,479	21,763	73,507
All NDSS men	9,348	9,136	28,951	18,692	66,127
NDSS total population (July 1, 1997)	20,155	18,603	60,421	40,455	139,634
Women ages 15-49	4,857	4,151	11,729	9,863	30,600
Total clinical episodes treated	23,986	24,359	28,104	20,708	97,067
MIS-reported FP caseload	1,040	1,985	6,062	1,359	10,446
Net-expected annual increase in the number of FP clients[a]	255	175	659	325	1,414[b]

Notes: a) Estimated by assuming net treatment effects from Table 6.1 apply to women ages 15-49, controlling for baseline characteristics and contraceptive use. The Cell IV effect is the predicted increase in prevalence when all treatment cells are set at zero (3.30 percent); b) Excluding Navrongo town.

Table7.6 Cost-effectiveness ratios of integrated health services in Kassena-Nankana District

NDSS Total Population, (July,1 1997)						
Strategies	*Total cost (US$)*	*Total population*	*C/E*	*Incremental cost*	*Incremental effect*	*Incremental C/E*
Health center alone (Cell IV)	50,151.15	40455	1.24	—	—	—
Health center & YZ (Cell I)	53,770.42	20155	2.67	3,619.27	-20300	-0.18
Health center & CHO (Cell II)	59,972.09	18603	3.22	9,820.94	-21852	-0.45
Health center, CHO & YZ (Cell III)	75,835.17	60421	1.26	25,684.02	19966	1.29
Total clinical episodes treated						
Health center (Cell IV)	50,151.15	20708	2.42	—	—	—
Health center & YZ (Cell I)	53,770.42	23986	2.24	3,619.27	3278	1.10
Health center & CHO (Cell II)	59,972.09	24359	2.46	9,820.94	3651	2.69
Health center, CHO & YZ (Cell III)	75,835.17	28104	2.70	25,684.02	7396	3.47
MIS reported FP clients						
Health center (Cell IV)	10,086.58	1359	7.42	—	—	—
Health center & YZ (Cell I)	11,994.42	1040	10.34	3,619.27	-319	-11.35
Health center & CHO (Cell II)	11,994.42	1985	6.04	9,820.94	626	15.69
Health center, CHO & YZ (Cell III)	15,167.0	6062	2.50	25,684.02	4703	5.46

When the criteria for assessing efficiency is shifted from health episode to family planning, conclusions are altered by treatment differences in effectiveness. Assuming that 20 percent of the total cost in each cell was utilized for the delivery of family planning services, then the cost per effectively recruited family planning client ranges from US$2.50 in Cell III to US$10.34 in Cell I, indicating that the most cost-effective strategy for offering family planning services to people is in Cell III (see Table 7.6).

Conclusion

Although cost-effectiveness analysis is intended to facilitate decisionmaking, is not a technique that dictates decisions in isolation of other considerations. The decisionmaker may or may not accept what appears to be the most cost-effective alternative, because of having to operate in a political or planning environment in which some criteria outweigh others. However, if cost-effectiveness analysis alone is the basis for choosing the most appropriate strategy, the Cell III approach of combining *Zurugelu* activities with CHO outreach is the most cost-effective option. Adding the CHFP to a community health program costs less than a dollar per capita per year.

Notes

Economic costs (US$) for health centers by cell, 1997

	Paga (Cell I)		*Chiana (Cell II)*		*Navrongo (Cell III)*		*KNE (Cell IV)*	
Category	*Cost $*	*%*	*Cost $*	*%*	*Cost $*	*%*	*Cost $*	*%*
Recurrent costs								
Personnel	13,993.40	29.2	22,382.05	46.1	9,035.73	53.0	21,559.91	43.0
Training & super.	71.54	0.1	67.07	0.1	35.77	0.2	58.13	0.1
Pharmaceuticals	3,976.86	8.3	4,284.96	8.8	1,775.39	10.4	3,982.98	7.9
Office supplies	274.56	0.6	215.35	0.4	323.34	1.9	288.39	0.6
Other supplies	2,758.34	5.7	2,492.27	5.1	2,175.95	12.8	2,239.77	4.5
Sub total	21,074.70	43.9	29,441.70	60.6	13,346.18	78.3	28,129.18	56.1
Capital costs								
Building	24,654.72	51.4	16,757.03	34.5	2,601.96	15.3	15,861.17	31.6
Vehicle	1,279.34	2.7	690.67	1.4	681.76	4.0	656.67	1.3
Office supplies	165.27	0.3	83.45	0.2	31.58	0.2	4,000.54	8.0
Medical equipment	178.65	0.4	1,172.88	2.4	124.69	0.7	874.68	1.7
Furniture	511.19	1.1	190.04	0.4	160.55	0.9	516.90	1.0
Other supplies	131.31	0.3	214.80	0.4	88.21	0.5	112.01	0.2
Subtotal	26,920.48	56.1	19,108.87	39.4	3,688.75	21.7	22,021.97	43.9
Total	47,995.18	100.0	48,550.57	100.0	17,034.93	100.0	50,151.15	100.0
Grand total		29.3		29.7		10.4	163,731,83	30.6

1 For the financial costs, the annual costs were simply determined by taking the replacement costs and dividing by its working life (useful life). However, this is not adequate in terms of economic cost analysis, which must take into account the value of the sacrificed resources (i.e. opportunity costs).

2 In this instance, values were generated as an annualized cost, taking into account the possible earnings that the money could have made if it had not been used for purchase of a capital item. A discount rate of 3 percent was used to obtain the annualized costs. Annualization permits capital costs (and training costs which have an effect lasting longer than one year) to be converted to their annual equivalent, and thus added to annual recurrent costs. It involves spreading the cost of the capital item (other than land) over its useful life, but also allows for the opportunity cost of tying up funds in the capital item (as reflected by the discount rate). There are two ways to compute the annualized cost of a capital item that includes depreciation and interest. The first method uses the following formula:

$$a(r,n) \; - \; \frac{[r(r+1)^n]}{[(1+r)^n - 1]} \bullet CV$$

where a is the annual cost, r is the discount rate, n is the useful life of the item expressed in years, and CV is the current value of the capital item.

The second method is to use an "annualization table" which shows annualization factors for capital items with different useful lives at different discount rates (Reynolds and Gaspari 1985). Locate the number where the "discount rate" column and the "expected useful life" row intersect. This is the relevant annualization factor. Calculate the annualized value is obtained by multiplying the item's current value by the annualization factor. The annualized capital cost is then apportioned appropriately to the activity/program by usage.

3 Costs were converted at the average exchange rate of the year at the time of purchase or use. The average exchange rate for 1997 was US$1.00 = ¢2,248.90 (Monetary Survey, Bank of Ghana).

4 Estimating cost effectiveness of health and population services: The cost effectiveness of health/population services is estimated by dividing the total annual cost of the service by some measure of effectiveness. The smaller the ratio, the more cost effective a service is relative to other alternatives.

Cost-effectiveness ratio = total annual cost/effectiveness

In addition, economists make decisions on the margins so that the cost-effectiveness ratio should relate to the marginal or incremental costs of different options. The incremental cost-effectiveness ratio is calculated as the difference in cost between the health services in the control area and an option/strategy divided by the difference in effectiveness.

Incremental cost-effectiveness ratio = difference in cost/difference in effectiveness

5

Costs of some CHFP items (US$), 1997

Cost items	*Cell I*	*Cell II*	*Cell III*	*Cell IV*
1 CHO MOH salary & allowance (per annum)	—	1,233.27	1,233.27	—
1 CHO CHFP allowance (per annum)	—	266.80	266.80	—
1 CHO capital & other supplies (per annum)	—	698.12	761.10	—
1 Community Health Officer's house	—	711.46	711.46	—
Social mobilization (i.e. durbar etc.)	1,060.42	294.56	2,061.93	—
YZ training	753.47	—	1,004.63	—
1 YZ CHFP training allowance (per annum)	8.89	—	8.89	—
1 CHN salary & allowance (Level B clinic – per annum)	1,233.27	1,233.27	1,233.27	1,233.27
Health center (Replacement cost)	275,789.74	187,445.64	29,105.79	177,424.52
Operating cost of health center	21,074.70	29,441.70	13,346.18	28,129.18

Chapter 8

Reproductive Health Research Activities

Introduction

Various reproductive health research activities were undertaken over the course of the CHFP. This chapter reports on five of these activities, namely: integrating STDs/AIDs counseling into MOH clinical and YZ community activities, the introduction of NORPLANT® into the Kassena-Nankana District, a study of female genital mutilation (FGM), using volunteers as pill distributors, and a situation analysis report. Each activity will be examined separately.

Quality of Integrated Clinical Reproductive Health Services

Reproductive tract infections (RTIs) are becoming an increasing problem worldwide, and are particularly serious in sub-Saharan Africa. Moreover, HIV/AIDS is epidemic throughout Africa, and as the main mode of transmission in the region is sexual intercourse, the prevention of HIV transmission can be increased through the prevention and treatment of other sexually transmitted infections (STDs). Consequently, it is believed that interventions which can prevent the transmission of STDs will not only reduce their incidence but will also contribute to a reduction in the transmission of HIV.

The integration of STD/HIV/AIDS management services into existing MCH/FP clinic programs is one approach to improving quality of services. This includes both *primary* preventive activities (e.g. IEC, risk assessment and counseling) and *secondary* preventive activities (e.g. diagnosis and treatment of STD cases, and partner notification). This approach has been introduced on a trial basis in the Eastern Region of Ghana by the MOH, with technical assistance from JHPIEGO and partial funding from USAID. Since the NHRC is a site for the MOH to test new approaches to the delivery of family planning and other reproductive health services, it was agreed that the NHRC would test the feasibility of introducing a clinic-based integration intervention in the Kassena-Nankana District. The intervention would be supported through technical assistance from JHPIEGO and its introduction would be evaluated through the ongoing CHFP.

In July 1997, a two-person team from JHPIEGO undertook a site assessment of the District hospital, three MCH/FP clinics and two community-initiated clinics in the Kassena-Nankana District. Following this assessment, specific recommendations were made for ways in which the readiness of each site to provide integrated services could be improved. The recommendations addressed two issues: 1) the provision of adequate equipment, consumables and drugs; and 2) the training of service providers in infection prevention, sexual history taking, pelvic examination, STD counseling, and record keeping. Following the site assessment, training sessions were held for clinic staff in the district. The training was designed to increase staff knowledge of STDs and the contraceptive choices available to clients at risk of infection, and to reinforce their skills in risk assessment, pelvic examinations, diagnosis and treatment of STD syndromes, STD counseling, condom use, and communicating STD/HIV information to MCH/FP clients. Staff at the clinics began providing integrated services after the training.

As a CHFP component activity, a study was designed to evaluate the effect of the JHPIEGO training on service providers' activities and the quality of services received by clients. In particular, the study sought to evaluate the extent to which STD/HIV services have been integrated into routine MCH/FP services, on the quality of services received by clients, and on clients' understanding of STD signs, symptoms, modes of transmission and management. The specific aims of the study were:

- To assess the readiness of the clinics to offer MCH/FP and primary and secondary STD/HIV prevention services;
- To evaluate the extent to which STD/HIV prevention services are integrated into existing MCH/FP services; and
- To measure the quality of services received by MCH/FP clients.

While the study has contributed to understanding the climate of clinical care in Kassena-Nankana District, it should be noted that five SDPs represent a small observation set and are too limited a basis for general inference. However, building integrated services within the CHFP has been an important priority, and evaluating this effort merits documentation and review.

Operational Definitions

The following definitions were adopted in the study:

- **Readiness of clinics to offer services.** The presence or absence of certain key service delivery components of MCH, FP and STD/HIV services, including physical infrastructure, equipment, supplies, infection prevention procedures, trained staff, supervision, record keeping, reporting, etc.

- **MCH services**. The regular conduct of antenatal, post-natal, and child welfare clinics, immunization, family planning counseling and service provision, nutritional assessment of children, nutritional rehabilitation and health education, and school health services.

- **Family planning services.** Provision of contraceptive devices (pill, condom, injectable, spermicide, IUD, sterilization, NORPLANT®), natural family planning, family planning IEC.

- **Primary STD/HIV prevention services.** Incorporation of STD/HIV information and risk reduction messages into MCH/FP, antenatal and OPD health talks; STD/HIV risk assessment; risk reduction counseling; referral to other clinics where secondary prevention activities are available, when necessary.

- **Secondary STD/HIV prevention services.** Syndromic diagnosis and treatment of STD clients; enhanced syndromic diagnosis (by pelvic examination) and treatment of STD clients; STD education and counseling; partner management; and accurate record keeping.

- **Integration of STD/HIV management services.** The proportion of MCH/FP clients for whom STD/HIV education and/or management services were provided during consultation.

- **Quality of services received by clients.** Information exchange between client and provider; technical competence of provider in delivering services (including history taking, general and pelvic exams); arrangements made for follow-up; client satisfaction.

Methodology

Data collection for the study involved three units of observation—service delivery points (SDPs), staff at SDPs, and clients attending SDPs on day of visit. All five SDPs in the district (i.e. a district hospital, an MCH/FP clinic, a community clinic, and three health centres) were visited for a period of five working days to assess their readiness to offer integrated services.

Not all staff working at the SDPs at the time of the study were involved in the training, however all staff present during the visit of the research team (and who agreed to participate in the study) were interviewed. To measure the quality of services provided and the degree to which STD/HIV services have been integrated into the MCH/FP services, all antenatal, post-natal and

family planning clients attending the clinics during the period of the research team's visit were included (subject to their giving informed consent).

Data were collected using a modified version of the Situational Analysis approach (Miller et al. 1998). This modified approach has been developed, tested, and used by the Africa OR/TA project in a study of integrated programs in East and Southern Africa. This approach involves the use of four data collection instruments to collect information from the three sampling units described above:

- An inventory of clinic facilities to collect data to measure their readiness to offer services;
- An interview schedule for providers at the SDP to collect information on their experiences, training, knowledge and perceptions of correct procedures;
- An observation guide to collect data on the interaction between clients and providers;
- An exit interview schedule for clients attending the SDP to collect data on their knowledge of FP and STDs, and their expectations of the services provided;

Observation of client-provider interactions and client exit interviews require specialized skills. Thus for the observation of client-provider interactions, two members of the national Situation Analysis study (conducted by the Ghana Statistical Service) were recruited for this investigation. Two experienced interviewers were also recruited to conduct the exit interviews. Data collection took place between July and August 1998.

Results

Characteristics of clinical clients. A total of 111 clients attending the SDP were interviewed. All the respondents were within reproductive ages (15-49), with a mean age of 27. More than half (56 percent) of the clients have never been to school, 20 percent have primary education, while only 7 percent have secondary education or higher (Table 8.1). The low educational status of clients is further reflected in the fact that about 77 percent (not shown) of them cannot read. The majority of clients (80 percent) are currently married, with about 47 percent of the married clients in polygamous unions. The major reason for attending the SDP was for curative services (66 percent). About 32 percent of clients were either new (or discontinuers) who were returning for a method or continuing users coming for resupply.

Technical Competence

The experience and skills of providers are essential in the provision of quality services. To perform competently, providers need to have adequate training and access to appropriate equipment. To assess the technical competence of providers, a total of 34 staff of the SDP were interviewed on various aspects of their work and training. The following staff were interviewed: 3 doctors/medical assistants, 3 public health nurses, 16 registered nurse/midwives, 10 community health nurses, one enrolled nurse, and one other staff. All the staff interviewed (except 1) were females. The duration of work at the current SDP ranges from less than six months to 40 years, with an average of 4.8 years. Out of 34 staff interviewed, 19 (or 56 percent) completed their basic training more than ten years ago. The basic training covered a wide range of topics such as family planning, maternal and child health care, STD/HIV/AIDS, and curative services. Unfortunately, some of the staff have not had any refresher training in some of these topics. For instance, of those whose basic training curriculum included family planning, 33 percent (i.e. 10 out of 30) have not had any refresher training in family planning.

Table 8.1 Background characteristics of client respondents

Characteristic	*Number of clients*	*Percent*
Age		
Under 20	9	8.1
20-29	56	50.4
30-39	42	37.8
40+	4	3.6
Education		
None	62	55.9
Primary	22	19.8
Middle/JSS	18	16.2
Secondary/higher	9	8.1
Currently married?		
Yes	89	80.2
No	22	19.8
Union type[a]		
Monogamous	47	52.8
Polygamous	42	47.2
Main reason for visit		
New adopter	12	10.8
Resupply	25	22.5
Curative care	74	66.7
Total	*111*	*100.0*

[a] Among currently married women

Over half of the providers interviewed (59 percent) have had refresher courses specifically on family planning clinical skills, family planning program management, or

HIV/STD counseling and treatment. The training included topics such as general clinical skills in family planning, family planning counseling, management, supervision and record keeping, and STD/HIV risk assessment and counseling. In some cases the last refresher training was quite recent (i.e. less than a year prior to the interview) while in some cases the training occurred much earlier (from 1 to 10 years before the study).

Family Planning Activities at SDPs

As a matter of standard operating procedure, every SDP in Ghana is expected to provide family planning methods and conduct IEC activities. In line with the national policy, family planning services are to be integrated into the other health services components. The study included a number of items intended to examine the extent to which SDPs in the district comply with the policy directive.

A variety of services are provided at the SDPs, including family planning, maternal/child health services, STD/HIV/AIDS diagnosis and counseling, as well as curative services. Thus the SDPs appear to be providing integrated MCH/FP services in their daily activities. Almost all the staff interviewed (91 percent) reported having provided family planning services in the past three months.

Although all the SDPs provide a range of nonclinical family planning methods (e.g. pills, condoms, spermicides, injectables, and the diaphragm), clinical methods (i.e. IUD, NORPLANT®, and sterilization) are provided only in the district hospital. Thus the type of methods actually provided by staff in the last three months depend on the type of services offered by the particular SDP. In the three months prior to the study, 23 out of the 34 (i.e. 68 percent) staff interviewed actually provided or referred clients for the pill, 56 percent for IUD, 76 percent for injectable, and 62 percent for NORPLANT®. To some extent, this indicates the popularity of the various methods in the district. Nevertheless, the data suggest that SDPs in the district subscribe to the "cafeteria approach" in the provision of family planning services. In other words, several methods are provided and clients choose the one they prefer.

Interpersonal Relations

Client opinions about the quality of interaction with the provider can influence the acceptance and continuation of contraceptive methods. Aspects of the interpersonal relations between clients and providers were examined in the study in two ways. Exit interviews with clients attending

SDPs provide a picture of the client perceptions of their interaction with the provider. On the other hand, observation of client-provider interactions provides an independent assessment of the client-provider interaction.

A total of 38 client-provider interactions were observed, most of which (92 percent) involved interaction with new or continuing users. In 82 percent of the observations the provider received and greeted the client in a friendly manner. However, not much effort was made to understand the needs of the client. Table 8.2 indicates the proportion of observations in which specific needs of the client were asked or mentioned. As can be seen from the table, assessment of the needs of clients leaves much to be desired. More often than not, the provider did not ask whether the client wanted more children in the future, the desired timing of the next birth, breastfeeding status or previous use of a method. Such information is vital in guiding the client in choosing an appropriate method. It is essential that providers adequately understand the needs of client so as to serve them better.

Table 8.2 Understanding clients needs

Did provider ask or did the client mention any of the following?	*Number of observations*	*Percent of observations*
Client wants children in future	12	31.6
Preferred timing of next birth	6	15.8
Whether client is breastfeeding	4	10.5
If client has used method before	17	44.7

Many of the clients (72 percent) found the duration of consultation to be about right, and nearly all (97 percent) felt that the provider listened to their problems to their satisfaction (Table 8.3). Over 70 percent reported that the provider allowed them to ask questions, responded satisfactorily to their questions, or adequately explained the health problem about which they came to the SDP. Privacy was generally adequate (75 percent) and discussions were not difficult for clients to understand (91 percent). Thus, clients are generally satisfied with services.

Table 8.3 Client's satisfaction with interaction

During this visit, did you feel that the nurse…	*Number of clients*	*Percent of clients*
Listened to your health problem to your satisfaction?	108	97.3
Let you ask questions you thought important to you?	81	73.0
Responded to your questions to your satisfaction?	82	73.9
Adequately explained to you about the health problem you came to the clinic for?	83	74.8

Information Provided to Clients

Information given to users consists of at least three key elements that help users in selecting and practicing contraception effectively: i) information about contraindications, risks, and benefits of various methods; ii) information on how to use a method, its potential side effects, and how to manage those side effects; and iii) information about what users can expect from service providers regarding advice, support, supply, and referral to other services if needed (Jain 1989). In order to make an informed choice regarding a contraceptive method, a client should be fully cognizant of the advantages, disadvantages, contraindications, and potential side effects of the methods.

From the client-provider observations, very little information is given to clients regarding contraceptive methods. In many instances the provider did not mention the various methods, their advantages and disadvantages, or potential side effects. Depo-provera was the most frequently mentioned method during the observations (68 percent). Perhaps this reflects the popularity of the method. But even for this method, its advantages were mentioned in only 50 percent of the cases. The disadvantages of the method were mentioned in 35 percent of the observations, while potential side effects were mentioned in 46 percent of the cases. This suggests that in the majority of the cases clients do not receive adequate information regarding various contraceptive methods to enable them make informed choices. However, among clients who adopted a new method during the observation the situation was somewhat different. In eleven of the observations the client adopted a new method. Of these eleven, 82 percent received information on how to use the method; 64 percent were informed of the advantages of the method, while only 36 percent received information on the disadvantages of the method. About half (54 percent) were told about potential side effects, how to manage potential problems with method, and when to return for resupply or follow-up.

Taking the medical history of clients is a necessary ingredient in quality care for it reveals a lot about a client, and helps identify the needs of the client. Medical histories were taken in 25 (66 percent) interactions with more than half of this limited to menstrual history and abnormal vaginal bleeding. One interaction involved eliciting information on symptoms of sexual tract infection (STI). These include whether there was a sexual contact in the past three months, any previous treatments for STIs and any allergies to antibiotics. Clinical history was limited to blood pressure and weight. Five physical and two breast examinations were also

observed. There were no pelvic or laboratory examinations. This reflects low quality of care. One of the advantages of family planning is that other medical conditions in a client can be detected and treated. These can only be detected through detailed history taking and clinical examination. If this is not done, then the client cannot derive full benefit from other services available.

The observers noted that other health issues such as child growth monitoring, nutrition, infertility, and breastfeeding were discussed with clients. However, this was in less than one third (30 percent) of the cases.

STD/HIV/AIDS Services and Information Provided

In the majority (97 percent) of the client-provider interactions, the observers noted that the provider did not undertake any STD/HIV risk assessment, nor did they provide STD/HIV counseling. Clearly, very little STD/HIV/AIDS risk assessment or counseling is provided at the SDP. May be this is a reflection of the fact that very few clients come to the SDPs with STD related problems. However, it may also indicate the fact that providers have not integrated STD/HIV/AIDS into MCH/FP activities, although most providers indicate that they feel comfortable discussing STD/HIV/AIDS, and many of them have had training in STD/HIV counseling and treatment. To ensure healthy reproductive behavior among clients, it is not enough to provide them with contraceptive methods; every effort must be made to prevent the transmission of sexually transmitted diseases.

Summary and Conclusions: Reproductive Health Training for Clinical Staff

This operations research study assessed quality of care in various SDPs in the Kassena-Nankana district using a modified version of the Situational Analysis approach. Results from exit interviews with clients attending the SDPs on the day of interviews suggest that clients are highly satisfied with the care provided. However, observation of client-provider interactions highlight the need to improve various aspects of service provision. In particular, providers need to improve on the assessment of clients' needs. In addition there is the need to provide family planning clients with adequate information about available methods (especially advantages, disadvantages, and side effects) to enable clients make informed choices. One way to address

some of these issues would be to organize regular training programs for service providers to update their knowledge and skills in the provision of family planning services.

Integrating STDs/AIDs Educational Services into YZ Activities

Although the CHFP project has made some headway in providing women with access to contraception, the project continues to develop its service regimen. More remains to be done in improving service coverage and quality. Continuing attention is addressed to expanding information about sexually transmitted diseases including HIV/AIDs, and ensuring broader attention to women's reproductive health needs, in compliance with the Cairo ICPD agenda. In June 1997, the Centre for Development and Population Activities (CEDPA) in collaboration with the Navrongo Health Research Centre (NHRC), provided training to YZ on integrating STDs/AIDs prevention, education, counseling, and referral into their activities. This program trained YZ in STDs/AIDs counseling, risk assessment and risk reduction, prevention, and education. The training aimed to enable YZ to provide better education and counseling on STDs/AIDs to their clients in order to reduce the transmission of STDs/AIDs in the study population. This training exercise formed part of the ongoing efforts to improve the quality of health and family planning service delivery in the Kassena-Nankana District.

As a follow-up to this training, a study was conducted to examine the impact of the training on both YZ and their clients. With regard to YZ, the study sought to find out the extent to which the knowledge and skills provided during the training has been applied in their work. In particular, we were interested in the ability of YZ to identify and counsel clients who are at risk of STDs/AIDs.

The CEDPA training aimed at improving the quality of services provided by YZ. With the new knowledge and skills provided in the training it was expected that YZ would be in a better position to educate and counsel their clients on STDs including HIV/AIDs. The analysis tests the hypothesis that YZ training results in better service to clients thereby contributing community awareness of STDs and AIDs. First, we present an overview of the methodology used in assessing impact. Next we examine the impact of the training on general awareness of STDs/AIDs, and methods of prevention against AIDs. Data from indepth interviews with YZ are used to provide the YZ perspective on the training and its impact on their activities. We conclude the section with a discussion of the implications of the reported findings.

Methodology

The evaluation study was designed to give a general impression of the impact of the CEDPA training on STDs/AIDs knowledge in the Kassena-Nankana district. The study had both quantitative and qualitative components. During the 1996 round of Panel interviewing, some general questions on STDs/AIDs were asked of all respondents (i.e. women of reproductive ages and their co-resident spouses) in the Kassena-Nankana District. This survey occurred prior to the training of the village-based health workers. Consequently, the data from this survey provided baseline information in assessing the impact of the YZ training. Another panel survey round was fielded in August 1997, soon after the YZ had received the training, in which respondents were asked about their knowledge of STDs/AIDs. Data from this survey could indicate the prevailing level of STDs/AIDs awareness at the time YZ were given the training. A post-training survey was conducted in early 1998 to collect information on STDs/AIDs knowledge and awareness among adults in the Kassena-Nankana district. Since the focus of the survey was to evaluate the impact of the YZ training, the survey was conducted in only two cells of the CHFP project: a YZ-only area (Cell I) and a control area (Cell IV).

In addition to background information on respondents, the survey asked questions on general knowledge of STDs/AIDs, and the prevention of sexually transmitted diseases, and interaction with YZ. The survey questionnaire appears in the Appendix. The survey was carried out between January and March 1998, using fieldworkers who had participated in the 1997 panel survey. In all, a total of 3130 adults (1724 women and 1406 men) were successfully interviewed. The major objective was to compare the reported level of knowledge of STDs/AIDs in Cell I and Cell IV under the hypothesis that YZ training and activities in Cell I would increase the level of respondent knowledge relative to knowledge in Cell IV where there are no YZ.

Sociodemographic Characteristics

Table 8.4 gives a profile of the respondents in the survey. Respondents are generally adults of reproductive age. Over half of them are female, currently married, with little or no education. Over 60 percent of them have ever given birth. With the exception of ethnicity, the general characteristics of respondents are the same in Cell I and IV. Cell I is mainly a Kassim-dominated area while Cell IV is dominated by Nankam speakers.

Table 8.4 Percent distribution of respondents according to background characteristics by cell

Background characteristics	*Cell I (N = 1045)*	*Cell IV (N = 2085)*	*All respondents (N = 3130)*
Sex			
Male	46.5	44.1	44.9
Female	53.5	55.9	55.1
Age			
15-19	25.3	26.4	26.0
20-24	15.6	10.3	12.0
25-29	11.6	10.2	10.7
30-34	9.5	10.7	10.3
35-39	9.9	11.9	11.3
40-44	11.0	10.9	11.0
45-49	9.7	9.2	9.4
50+	7.5	10.3	9.4
Level of education*			
None	55.5	67.9	63.7
Primary	23.6	21.2	22.0
Middle/JSS	14.8	9.0	10.9
Secondary/higher	6.0	1.9	3.3
Religion*			
Traditional	46.9	69.2	61.7
Christian	32.6	29.4	30.5
Muslim	19.5	0.7	7.0
Other	1.0	0.7	0.8
Ethnicity*			
Kassim	91.7	10.4	37.6
Nankam	1.6	88.9	59.7
Other	6.7	0.7	2.7
Currently married*			
Yes	58.0	59.1	58.8
No	42.0	41.9	41.2
Ever given birth*			
Yes	65.3	64.4	64.7
No	34.7	35.6	35.3

Note: * Less than 10 missing cases omitted.

The qualitative component of the study consisted of indepth interviews with about ten YZ (two females and eight males) in the district. The content of the interviews was based on the topics that were covered in their training as well as what they do in their daily work. The objective of these interviews was to ascertain what they remember from the training and how the knowledge acquired during the training is applied to their work. YZ were asked about their most recent family planning and STDs clients and how they handled these clients. The guide for the indepth interviews appears in Appendix 2. Interviews were tape recorded and transcribed for the analysis.

General awareness of STDs. In both the 1996 panel and the 1998 CEDPA survey a general question was asked to ascertain the respondent's awareness of sexually transmitted diseases. Although the phrasing of the question was different in the two surveys, the meaning was basically the same. In 1996 the panel survey question was *"As far as you know, are there any diseases that can be transmitted through sexual intercourse?"* The corresponding question in the CEDPA evaluation survey was *"Now I have some questions about sexually transmitted diseases. Have you heard of any diseases that could be transmitted through sex?"* A "Yes" response to either of these questions is seen as an indication that the respondent is generally aware of the existence of sexually transmitted diseases.

Levels of awareness of sexually transmitted diseases are reported in Table 8.5 for males and females in each of the two study cells. In general, men appear to be more aware of STDs than women. In 1996 about 69 percent of men had some awareness of STDs compared to 53 percent of women. The differential was smaller in 1998, 69 percent and 64 percent for males and females respectively. There was a general increase in the awareness of STDs between 1996 and 1998 among women (from 53 percent to 64 percent) while no noticeable change could be observed among men. However, trends in STDs knowledge across cells are contrary to expectation. While levels of STDs knowledge declined among respondents in Cell I, an increase in knowledge over the period, especially among women, was observed in Cell IV. It is unclear why knowledge should decline in Cell I where the YZ are operating and increase in the comparison area. This issue merits further investigation.

Table 8.5 General awareness of STDs among men and women

	1996		*1998*	
Experimental cell	*Male*	*Female*	*Male*	*Female*
Cell I	80.6	66.6	68.9	61.5
Cell IV	61.5	45.1	69.6	65.6
All respondents	68.8	52.7	69.3	64.2

Knowledge about HIV/AIDs is nearly universal among respondents. When asked specifically about HIV/AIDs, about 97 percent of males and 94 percent of females in 1996 indicated that they have heard of the disease (Table 8.6). Levels of knowledge were higher in Cell I than in Cell IV among both males and females. In 1998, there was a general decline in the levels of knowledge, although males were still more knowledgeable than females. Respondents in Cell I still appear to be more aware of HIV/AIDs than their counterparts in Cell IV.

Table 8.6 General awareness of AIDs among men and women

	*1996**		*1998*	
Experimental cell	*Male*	*Female*	*Male*	*Female*
Cell I	99.3	97.6	95.1	94.8
Cell IV	95.9	92.6	89.3	88.0
All respondents	97.2	94.4	91.3	90.2

Note: * 7 missing cases omitted.

In the 1998 survey respondents who indicated that they were aware of STDs were asked to mention some of the diseases that could be transmitted through sexual intercourse. Among the diseases mentioned were gonorrhea, syphilis and HIV/AIDs. The distribution of males and females in each cell who mentioned a particular disease is shown in Table 8.7. Generally, knowledge of specific STDs is higher among men than women. However, both men and women seem to be more knowledgeable about HIV/AIDs than any of the other two diseases. Syphilis is relatively unknown among the study population.

Table 8.7 Knowledge of a particular STD or AIDs among men and women, 1998 CEDPA Evaluation Survey

STD/cell	*Male*	*Female*
Gonorrhea		
Cell I	36.8	19.0
Cell IV	32.3	19.1
All respondents	33.8	19.0
Syphilis		
Cell I	4.5	2.0
Cell IV	7.1	3.5
All respondents	6.2	3.0
HIV/AIDs		
Cell I	61.3	54.6
Cell IV	64.0	61.5
All respondents	63.1	59.2

Knowledge of STDs signs and symptoms. To further examine knowledge about STDs, respondents were asked to mention some of the common signs and symptoms of sexually transmitted diseases. For this report the signs and symptoms mentioned were classified in terms of whether they describe STDs in general, reproductive tract infections, or HIV/AIDs. The data in Table 8.8 describe knowledge of STDs signs and symptoms among the respondents. The STD knowledge data are presented by sex and experimental cell for 1996 and 1998. The first panel of Table 8.8 describes knowledge of the general signs and symptoms of STDs including HIV/AIDs. In both 1996 and 1998 knowledge of the signs and symptoms of STDs is lower among females

than males. Whereas 47 percent of male respondents could identify at least one sign/symptom of STDs in 1996, only 38 percent of females could do so. In terms of cell differentials, knowledge of STDs signs and symptoms among males and females was higher in Cell I than in Cell IV in 1996. However, in 1998 knowledge was slightly higher in Cell IV than in Cell I. It should be noted that in both 1996 and 1998 the proportion of respondents who could identify at least one symptom of STDs was lower than the proportion who reported that they were aware of STDs in general. This suggests that although some people may have heard of STDs they do not necessarily have detailed knowledge of the signs and symptoms associated with various STDs.

Table 8.8 Knowledge of STDs signs and symptoms among men and women

	1996		*1998*	
	Male	*Female*	*Male*	*Female*
General STDs symptoms				
Cell I	65.2	55.3	60.1	51.5
Cell IV	35.8	28.2	60.9	55.4
All respondents	47.1	37.8	60.6	54.2
RTI symptoms				
Cell I	24.9	10.8	28.4	15.5
Cell IV	14.0	7.3	26.4	16.4
All respondents	18.2	8.5	27.1	16.2
HIV/AIDs symptoms				
Cell I	57.1	51.4	40.7	41.9
Cell IV	28.6	23.0	49.0	50.3
All respondents	39.5	33.1	46.2	47.6

Although HIV/AIDs can be transmitted through sexual intercourse, there are also other ways in which the disease can be transmitted. Consequently, HIV/AIDs can be treated differently from other STDs. In this report we classify STDs apart from HIV/AIDs as reproductive tract infections (RTI). The second panel of Table 8.8 describes knowledge of RTI signs and symptoms among men and women in Cell I and IV. As in the case of STDs signs and symptoms in general, males tend to be more aware of the signs and symptoms of RTIs than females. This is true in both Cells I and IV and for 1996 and 1998. In 1996 twice as many males as females could identify at least one symptom of RTI (18 percent for males and 8 percent for females). Although the male-female gap appears to have declined in 1998, knowledge of RTI signs and symptoms is still much higher among males (27 percent) than females (16 percent). The cell differentials are more noticeable in 1996 than in 1998, with Cell I tending to have an advantage over Cell IV.

Knowledge of HIV/AIDs signs and symptoms appears to be much higher among the respondents than knowledge of RTI signs and symptoms. This is consistent with the greater awareness of HIV/AIDs reported in Table 8.7. In 1996, about 40 percent of males and 33 percent of females could identify one or more symptoms of HIV/AIDs (lower panel of Table 8.8). In 1998, this had increased to 46 percent and 48 percent among males and females respectively. As noted in connection with panel 1 of Table 8.7, males are more aware of HIV/AIDs than females. Interestingly, knowledge of HIV/AIDs symptoms was slightly higher among females than males in 1998 in both Cell 1 and IV. Also, whereas knowledge of HIV/AIDs signs and symptoms in 1996 was higher among respondents in Cell I than in Cell IV, in 1998 the situation had reversed, with respondents in Cell IV reporting higher levels of knowledge than those in Cell I.

The high level of knowledge of HIV/AIDs relative to RTI deserves some comment. Mainly due to the incurable nature of HIV/AIDs, much of the public education on STDs has focused mainly on HIV/AIDs. Consequently, people more readily associate HIV/AIDs with sex than any other disease. Although HIV/AIDs certainly deserves great attention in health education programs, attention also needs to be paid to the other STDs.

Respondents appear to be more knowledgeable about how HIV/AIDs is transmitted than in the signs and symptoms of the disease. Although only 39 percent of men could identify at least one symptom of HIV/AIDs in 1996 (see Table 8.8), about 75 percent of men could identify at least one method by which HIV/AIDs can be transmitted in the same year (Table 8.9). The same pattern can be observed in 1998 and among men and women in both cells. This suggests that people are generally aware of the disease and its modes of transmission. However, they are less knowledgeable about the signs and symptoms associated with the disease.

Table 8.9 Knowledge of modes of transmission of AIDs among men and women

	1996		*1998*	
	Male	*Female*	*Male*	*Female*
Cell I	86.5	72.5	78.5	71.7
Cell IV	67.7	55.2	72.8	67.7
All respondents	69.0	61.4	74.9	69.0

Note: 7 missing cases omitted.

Knowledge of the means of protection against HIV/AIDs is quite high among respondents, and appears to be increasing (Table 8.10). In 1996 about 66 percent of males and 54 percent of females knew of at least one method of protection against HIV/AIDs. In 1998

however, 74 percent and 67 percent of males and females respectively knew of at least one method of protection against HIV/AIDs. In both 1996 and 1998 knowledge of the means of protection against HIV/AIDs was higher among males than females in both Cell I and Cell IV. However, knowledge seemed to have declined in Cell I, but increased in Cell IV during the period.

Table 8.10 Knowledge of methods of protection against AIDs among men and women

	1996		*1998*	
	Male	*Female*	*Male*	*Female*
Cell I	82.0	72.4	74.9	68.2
Cell IV	55.5	43.1	74.0	67.1
All respondents	65.6	53.6	74.3	67.5

Note: 7 missing cases omitted.

The data presented above suggest that knowledge about STDs/AIDs in general is quite high among respondents. HIV/AIDs appears to be the most recognized STD among respondents. This could be due to the high popularity given to HIV/AIDs in health education and other educational programs throughout the country. In the process, other STDs seem to have been ignored. The data also suggest that men are more knowledgeable about STDs than women. This may be due to the fact that STD symptoms are more apparent to men than to women, thus prompting men to seek information on STDs. It may also be that men have more access to various sources of information than women. Whatever the case may be, there is the need to intensify efforts to create awareness of STDs/AIDs among women. In particular, educational programs need to emphasize the signs and symptoms as well as the ways to prevent STDs/AIDs.

No clear differentials between Cells I and IV are discernible from the data. In some instances knowledge appears to be higher in Cell I than in Cell IV, while in others the reverse situation is observed. Although data suggest that some amount of exposure to information on STDs/AIDs has been occurring in both cells, there is no evidence that CEDPA training activities for YZ have had an impact on STD/HIV awareness. It may be that at the time of the 1998 survey the YZ have not yet made any significant impact in terms of educating people in their catchment areas about STDs/AIDs. The YZ operated for barely six months after their training before the 1998 survey was fielded. Although findings from the analysis are contrary to expectations, it is reassuring to observe an increase in STDs/AIDs knowledge in the non-YZ area.

Interaction with YZ. The 1998 CEDPA evaluation module includes questions designed to examine the level of interaction between YZ and members of the community in Cell I (note that YZ do not operate in Cell IV). In this regard, some questions were asked about contact with YZ, and discussion with YZ on various topics such as STDs/AIDs and the use of modern contraceptives. Table 8.11 describes aspects of YZ interaction with respondents in Cell I. Less than a quarter of respondents (14 percent) indicated that a YZ had visited their compound in the past twelve months. However, a slightly higher proportion (20 percent) had some contact with a YZ during the same period. This suggests that interaction with YZ is not only limited to the compound visits.

Table 8.11 Interaction with YZ in Cell I

	Percent of respondents
YZ visited compound in past twelve months	14.0
Had discussion with YZ in past twelve months	19.7
Discussed modern contraception with YZ	10.1
Discussed STDs/AIDs with YZ	9.2
YZ advised on correct use of condoms	9.1
YZ advised on how to avoid STDs/AIDs	8.5
Number of respondents	1045

YZ are supposed to provide information on family planning and STDs/AIDs in their daily activities. Only 10 percent of respondents recall having had a discussion with a YZ on modern contraception (Table 8.11). A slightly lower percentage (9 percent) said they had discussions with the YZ on STDs/AIDs, and about the same percentage received advice from the YZ on the correct use of condoms. About eight percent of respondents received advice from the YZ on how to avoid getting STDs/AIDs.

These data indicate that some amount of information on family planning as well as STDs/AIDs is being provided by the YZ. However, the reported level of contact with YZ clearly indicates that there is still considerable room for improvement. Every effort needs to be made to extend the coverage of the YZ in their areas of operation.

YZ perspective on CEDPA training. The qualitative component of the study gives a different dimension of the impact of the CEDPA training: impact on service providers. Using in-depth interviews with YZ we examined how, if at all, the training had influenced their work. The indepth interviews with YZ occurred almost a year after their training. At the time of the

interviews many of the YZ had worked for about two years in their respective communities. This section presents the YZ perspective on the impact of the training.

During the indepth interviews efforts were made to get the YZ to recall the focus of the CEDPA training. When asked about the training, responses from the YZ highlighted the fact that the training focused on STDs/AIDs and family planning (Box 8.1). YZ comments on the relevance of the training appear in Box 8.2.

Box 8.1

YZ 1
During the CEDPA training we were taught "STDs/HIV/AIDs integrated into family planning." You know that when you talk about "family planning" it is important to discuss these diseases also else your discussion would be incomplete.

YZ 2
Yes, during the training we were taught some things about AIDs and how to advise members of our community to protect themselves from getting infected. We were told that AIDs is basically transmitted through sex and that we should advice our people against promiscuity. Furthermore, it was explained that we should counsel our clients on how to use condoms to protect themselves.

Box 8.2

YZ 1
Before the training, my concentration was always on "family planning" and "environmental health", since I did not know much about STDs/AIDs. Now the training has made me knowledgeable in the field of STDs and I am able to discuss them with my people, especially their mode of transmission and how to prevent them.

YZ 3
The training helped me a lot because I got to know that you could be with somebody (i.e. have sex with somebody) and there would be a device that would prevent you from contracting STDs. I was also taught how to talk to my people to prevent these diseases, and that has helped me a lot. I did not also know about STDs especially what would make one know that he or she has an STDs, so as to seek early treatment. But I got to know all these things during the CEDPA training and I am now able to help my people with such knowledge.

Although focus group data are sometimes influenced by the climate of group dynamics surrounding exchanges, it is apparent that YZ that the training helped to improve their knowledge of STDs and AIDs. Responses also convey the impression that knowledge acquired from the training improved capacities to discuss these diseases with their clients than previously. YZ readily identified gonorrhea and syphilis as common STDs in their communities. Although they were aware of AIDs only a few of them had ever come across an AIDs case, as such AIDs was not mentioned by YZ as a common STDs in the community. Further demonstration of their knowledge of STDs was seen in their ability to identify common signs and symptoms of STDs. The most common signs and symptoms mentioned include: itchy genitals, sores on the penis, vaginal discharge, difficulty in urinating, prolonged diarrhoea and, in the case of AIDs, loss of weight.

An important focus in the indepth interviews was the extent to which YZ applied the knowledge acquired in the training in their daily activities. Toward this end, part of the interview focused on actual experiences with family planning clients as well as STDs cases. Actual encounters with AIDs cases were rare, and the common STDs cases encountered were gonorrhea and syphilis. Typically, YZ listened to the complaints of a client and decided that the person was suffering from an STD. Clients suspected of having an STD were referred to the hospital since YZs are not provided with drugs to treat such cases. The following excerpts in Box 8.3 illustrate this screening and referral process.

Clearly, YZ have a good idea of what should be done when they come across a client with STDs. There are indications from their responses that attempts are being made to implement what they have been thought during the training. If the basic messages about STDs/AIDs are carried to majority of the population in the YZ areas, then the training will obviously go a long way to promote healthy reproductive behavior. The challenge is to motivate the YZ to extend their health messages to as many people as possible.

Box 8.3

Moderator
In your work as YZ have you come across clients with STDs/AIDs?

YZ 3
As for AIDs, no one has ever come to me with it. But I have seen two clients with gonorrhea. Initially, we were referring a lot of them to the hospital without knowing that their ailments were STDs. But we got to know after the training.

Moderator
When was the last time you met a client with an STDs?

YZ 3
Last February. A woman came to me and explained her problem to me and I knew she was suffering from gonorrhea.

Moderator
What did you do for her?

YZ 3
I referred her to the hospital for treatment, and when she came back she told me that they gave her capsules and injections. I also advised her to get her partner treated as well. When she told me that the husband had girl friends, I added that then all the other women needed to be treated, else the disease would recur.

Conclusions Regarding the CEDPA YZ Training Initiative

Improving the quality of services is an important challenge to family planning programs world-wide. Having expanded access to family planning services in the Kassena-Nankana district, the CHFP phases the challenge of improving the quality of services and meeting the reproductive health needs of the of clients. Improving the knowledge and skills of service providers is a

necessary step in improving service quality. Toward this is end training was provided to YZ on integrating STDs/AIDs into their activities. This training sought to improve the skills of YZ in STDs/AIDs counseling, risk assessment and reduction, prevention and education. These reports from qualitative research were not substantiated by the survey appraisal, however, quite possibly because the duration of exposure to the YZ program was limited to only six months. Obviously, the true impact of the training will depend on how many people the YZ reach with their services over time. In this regard efforts should be made to expand the coverage of YZ activities. Regular training of YZ to update their skills should also be intensified.

Introduction of NORPLANT®

The NORPLANT® implant is a new method of family planning in Kassena-Nankana district as well as in the whole Upper East region. In 1995, two doctor-nurse teams in the District were trained by the Association for Voluntary Safe Contraception International (AVSCI) in the insertion and removal of NORPLANT® implants. This training was followed by the training of forty nurses and midwives in counseling in long-term contraceptive met-hods in the district. The first recorded case of NORPLANT® implant insertion in the District was in February 1996. As of November 30, 1997, approximately 140 women had accepted the method, within 36 months 192 insertions were given and 17 removals were provided. NORPLANT® is more popular in Kassena-Nankana District than in any other rural district in Ghana. The steady growth in NORPLANT® use is illustrated in the Figure 8.1 time trend. An operations research study was carried out to study these early NORPLANT® adopters in order to provide key programmatic

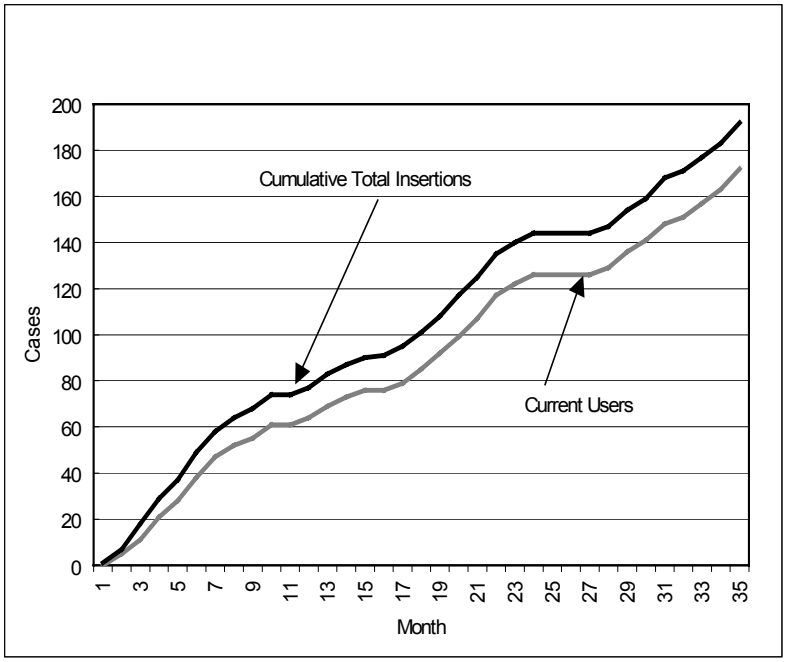


Figure 8.1 Monthly trends in NORPLANT® insertion

information to family planning service providers in the region and other parts of Ghana. The aim was to clarify factors explaining the popularity of the method as well as learning more about ways in which NORPLANT® service quality could be improved. This section focuses on the demographic characteristics of NORPLANT® users, factors that influenced their choice of NORPLANT®, their source of information on and experience with the method, and their level of satisfaction with NORPLANT®.

Demographic Characteristics of Early NORPLANT® adopters

Table 8.12 contrasts sociodemographic characteristics of NORPLANT® users and those pertaining to women included in the panel survey sample. In 1997, the panel survey covered a random sample of 5,670 women ages 15-49 years. This is a representative sample of all women 15-49 in the Kassena-Nankana district.

There is a marked deficit of teenagers among NORPLANT® users relative to the age distribution of all women of reproductive ages. The age distribution of NORPLANT® users is generally older than the population at large. There is a deficit of women who are about to reach menopause among NORPLANT® adopters, and adopters tend to be concentrated in the mid-reproductive ages where fertility rates are the highest. The deficit of NORPLANT® users in the 15-19 years age group is related to the fact that there is a high proportion of unmarried teenagers and high percentage of primiparous women in this age group. The deficit at 45-49 is probably a reflection of the high percentage of women reaching menopause and thus having no need for long-acting contraception.

There are substantial differences between educational levels among NORPLANT® users as compared to all women of reproductive ages. NORPLANT® users are more educated than women in the general population. Fully 65.7 percent of women in the district who are aged 15-49 have no formal education while only 33.3 percent of the NORPLANT® users have no formal education. Moreover, educated NORPLANT® users are mainly women with higher levels of education, while educated women in the general population are have been limited to primary schooling.

In terms of religion, NORPLANT® users are also a selected sub-population. Traditional religion is the most common religion among the Kassena-Nankana, as reflected in the fact that more than half of respondents (54.9 percent) cite traditional religion when asked about their

religious preference. The corresponding figure is only 10.2 percent for NORPLANT® users. NORPLANT® users are predominantly Christian (70.1 percent).

Table 8.12 Percent distribution of women of reproductive ages, by NORPLANT® use, and selected sociodemographic characteristics, Kassena-Nankana District, 1997-98

Sociodemographic characteristic	*NORPLANT® users (N = 117)*	*All women ages 15-49* (N = 5,670)*
Age		
15-19	1.7	18.5
20-24	21.1	14.4
25-29	18.4	14.4
30-34	21.9	13.9
35-39	13.2	15.8
40-44	21.1	12.0
45-49	2.6	11.1
Educational level		
None	33.3	65.7
Primary	14.5	20.2
Middle/JSS	26.5	10.4
Secondary/higher	25.6	3.6
Religion		
Traditional	10.2	54.9
Christian	70.1	39.5
Muslim	17.1	5.0
Other	2.6	0.5
Ethnicity		
Kassim	77.8	51.3
Nankam	9.4	42.5
Builsa	1.7	5.1
Other	11.1	1.0
Current marital status		
Married	88.0	70.3
Not married	12.0	29.7
Parity	3.2	3.3

Note: Data are from the 1997 Panel Survey.

NORPLANT® innovators are typically Kassim speakers (over 77 percent of all NORPLANT® users). This distribution is very skewed compared the more balanced ethnic distribution observed in the overall population. This may be due to the fact that most NORPLANT® users are coming from Central, North, and West areas that are either treatment areas of the CHFP or parts of Navrongo Town where the Navrongo War Memorial Hospital, the main center for the provision of NORPLANT® device, is located. This clustering of NORPLANT® use in the vicinity of the District Hospital suggests that the method would be more widely used if it were available at the subdistrict level.

Although marriage seems to be more prevalent among NORPLANT® users as compared to other women, average parity is similar between these two groups. It is possible that, as with other contraceptives, NORPLANT® is used mainly for spacing purposes thus leading to comparable parity distribution between NORPLANT® innovators and other women.

In summary, the typical NORPLANT® user is a married woman, in her thirties, educated education, Christian, and resident in the vicinity of the service delivery point.

Factors Influencing the Choice of NORPLANT®

All NORPLANT® innovators covered by the present study were asked the following question "What were the main reasons you chose NORPLANT® instead of some other methods of family planning?" The answers are summarized in Table 8.13. The majority of NORPLANT® users opted for this method because of its attributes. Fully 94.1 percent reported some aspects of NORPLANT® features that influenced their choice of this method. The main three reasons for NORPLANT® adoption were the long duration of protection (40.2 percent), the convenience of use (30.8 percent), and the low cost of use (18.0 percent). Friends, relatives and health workers seem to play a minor direct role, although their indirect influence may be much greater than shown in the table.

Table 8.13 Percentage distribution of innovators by reasons for choosing NORPLANT®

Main reason for choosing NORPLANT®	*Percentage distribution*
Long duration	40.2
Convenient to use	30.8
Cheaper to use	18.0
Safer to use	2.6
Effective	2.5
Health worker advised to use	1.7
Friend or relative advised to use	2.5
Other	1.7
Total	100.0
Number of respondents	117

Geography is an obvious factor in the choice of NORPLANT®. Nearly all adopters are resident in Navrongo town or neighboring villages. This is illustrated in Figure 8.2 which presents a map of the spatial distribution of adopters. Nearly all of the 192 adopters registered in the district

reside within four kilometers of the War Memorial Hospital. Figure 8.2 suggests that expanding NORPLANT® availability at the subdistrict level would expand choice of this method.

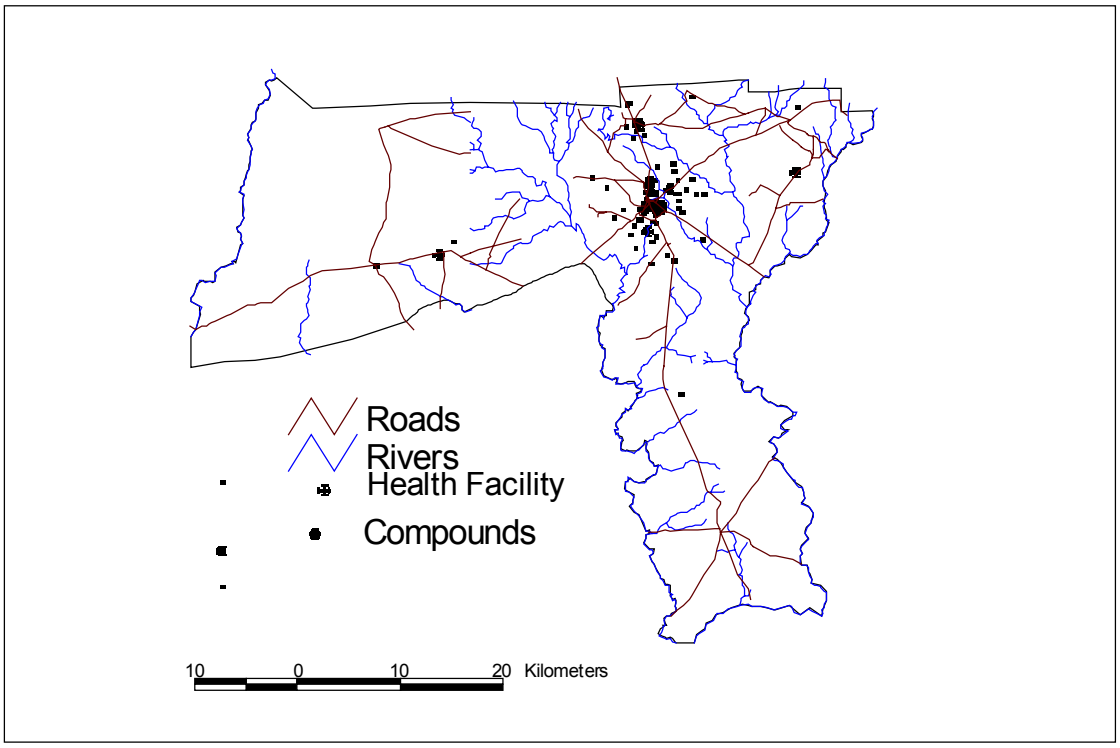


Figure 8.2 Distribution of NORPLANT® users in Kassena-Nankana District

Sources of Information about NORPLANT®

When asked from whom they first received information about NORPLANT®, 41 percent mentioned friends and relatives (Table 8.14), suggesting that social interaction and diffusion of information represents an important factor in the spread of NORPLANT® information. Health personnel constituted the most important source of information for 49.6 percent of the NORPLANT® users; 35.9 percent of NORPLANT® users first heard about NORPLANT® from doctors or nurses, and 13.7 percent from YZ or YN, i.e. the health volunteers of the NHRC Community Health and Family Planning Project (CHFP). The role of the mass media is limited; only 2.6 percent of respondents mentioned radio, television, or printed materials as their sources of information.

Table 8.14 Percentage distribution of innovators by their first source of information about NORPLANT®

First source of information about NORPLANT®	*Percentage distribution*
Doctor/nurse	35.9
YZ/YN	13.7
Friend/relative	41.0
Mass media	2.6
Other	6.8
Total	100.0
Number of respondents	117

NORPLANT® users who mentioned friends or relatives as their first sources of information were further asked whether those friends/relatives were NORPLANT® users. In 60 percent of the cases for which respondents mentioned friends or relatives as their first sources of information, the informant were NORPLANT® users who, in most cases (84 percent), encouraged them to use NORPLANT®. This corroborates findings from NORPLANT® research in various parts of the world suggesting that 75 percent of NORPLANT® users would recommend this method for their friends.

As shown above, most NORPLANT® users learned about this method from health personnel or previous NORPLANT® users. The focus on proper training of health personnel in the district in order for them to provide adequate counseling to NORPLANT® clients cannot be overemphasized. Also, the potential role of satisfied NORPLANT® users in recruiting or discouraging new clients is obvious and should be a motive for providing quality services to innovators and all subsequent NORPLANT® clients.

Experience with NORPLANT®

Quality of counseling and screening. Almost all potential NORPLANT® clients received counseling on possible side effects, alternative methods, and the need for NORPLANT® removal after five years of use. Table 8.15 shows that 93 percent to 98 percent were briefed about the range of available methods, the features of NORPLANT®, possible side effects and what to do or where to go to get help about them, and the fact that NORPLANT® can be removed at any time. Fully 82 percent of the NORPLANT® adopters reported that they were also told about the date they would come back to the clinic to have NORPLANT® removed. Medical screening was reported by 73.5 percent of the respondents.

Table 8.15 demonstrates an important area for program change and action. Fully 26.5 percent and 18 percent of adopters were neither screened nor told when to come back for removal. The percentage of NORPLANT® innovators provided with written materials about the method is quite low, although this should not constitute a serious problem in the future since the bulk of the population is illiterate.

Table 8.15 Percentage of NORPLANT® users who received specific counseling/screening services

Counseling/screening services received	*Percentage receiving specific service*
Potential client was informed on...	
...other available methods	93.2
...the benefits of NORPLANT®	93.2
...how long NORPLANT® can be used	98.3
...the fact that NORPLANT® can be removed at any time	95.7
...when to come back to clinic for removal	82.1
Possible side effects and how to handle them	95.7
Potential client was medically screened	73.5
Potential clients received written materials on NORPLANT®	27.4
Number of respondents	117

NORPLANT® insertion and removal. Insertion of NORPLANT® implants is a minor surgery (8 to 10 minutes) with simple anesthesia of the inside of the upper arm of the woman, and insertion of 6 tiny NORPLANT® capsules. Table 8.16 shows that 79.4 percent of women said that they did not experience any problem during such a procedure. Only 8.4 percent mentioned that they felt pain during insertion. About 12 percent of all NORPLANT® users mentioned a various problems such as discomfort at site and bleeding at site. Each of these problems constituted a minor percentage, less than 1 percent.

Post-insertion problems mentioned by NORPLANT® users were much less common than expected. 54.7 percent of NORPLANT® users indicated that they did not experience any post-insertion problem. As shown earlier, the NORPLANT® users benefited from high quality counseling before receiving the implants. Menstrual irregularity—the most common side effect of NORPLANT®—was a problem for only 22 percent of the respondents. Other problems mentioned by the NORPLANT® users included heavy bleeding (5.1 percent) and weight loss (3.4 percent). Eyesight problems, nausea, and pain were also among the problems experienced, but these formed a small percentage.

Table 8.16 Percentage distribution of NORPLANT® users by experience during and after insertion

Experience with NORPLANT®	*Percentage distribution*
During insertion of implants	
No problems	79.4
Pain	8.4
Other	12.2
After insertion of implants	
No problems	54.7
Irregular menses/amenorrhea	22.2
Heavy bleeding	5.1
Weight loss	3.4
Eyesight problems	0.9
Nausea	0.8
Pain	0.8
Other	11.1
Action taken to deal with post-insertion problems	
No action taken	37.7
Consulted a doctor/nurse	62.3

Among all 117 NORPLANT® users, 14 reported that they have ever asked a health worker to remove their implants. Nine out of the 14 asked for removal because they wanted to become pregnant, three because of changes in bleeding pattern, and two because of eyesight problems. As at the time of this study, removal was done for 11 of them. Two out of these 11 women switched to another family planning method immediately after they had NORPLANT® implants removed. For the remaining 106 continuous NORPLANT® users, 16 did not know when they were due for NORPLANT® removal.

Satisfaction with NORPLANT®

All NORPLANT® users canvassed by the present study were asked the following questions; Do you consider NORPLANT® a satisfactory method of family planning? If yes (no), Why do you consider it (not) satisfactory? Would you recommend NORPLANT® to other women? Table 8.17 shows that 97.3 percent of NORPLANT® innovators said that they were satisfied with NORPLANT®, and 90.3 percent said that they would recommend NORPLANT® to other women. More than half of the respondents indicated that they were satisfied with NORPLANT® because they do not bother about remembering when to use this method, once it is inserted. Other best-liked features of NORPLANT® were the convenience of not having to take NORPLANT® several times like the pill or the injections (12.0 percent), the fact that NORPLANT® can be removed at any time (7.6 percent), and discretion (7.6 percent).

Table 8.17 Satisfaction with and attitudes toward NORPLANT®

Satisfaction/attitude	*Percentage*
Satisfied with NORPLANT® (N = 117)	
Yes	97.3
No	2.7
Reasons why NORPLANT® is satisfactory (N = 114)	
Less bother remembering dates	51.1
Don't have to swallow pills regularly/no repeated injections	12.0
Can be removed at any time	7.6
Discretion	7.6
Other	21.7
Would recommend NORPLANT® to other women (N = 117)	
No action taken	90.3
Consulted a doctor/nurse	9.7

Conclusions Regarding NORPLANT® Introduction

Five main findings stand out from the NORPLANT® OR study: use effectiveness of NORPLANT® is high; satisfaction from the use of NORPLANT® is nearly universal, geographic clustering is prominent, indicating a need to develop more service sites; demand outstrips service capacity virtually indicating a paramedic insertion program; knowledge of removal dates is not universal, suggesting a need for more vigorous follow up on this issues and a need for more detailed counseling on removal dates.

The introduction of NORPLANT® in the Kassena-Nankana district has expanded contraceptive choice and uptake is growing rapidly. Because of the existence of the NDSS, the ability to track women using NORPLANT® exists in the district. However, efforts should be made to ensure that those who might travel out of the district indicate where they are moving to and their contact addresses so they could be reached if the need arises. Client education on the need to report to the health authorities in the communities they might move into about their NORPLANT® status should be included in counseling activities.

Female Genital Mutilation

In Ghana, female genital mutilation (FGM) is prevalent in the northern parts of the country (the Upper East and West regions and some parts of the Northern region). Although it is not a cultural practice in the southern parts of the country, migrants from the three northern regions, Burkina Faso, Niger and Mali practice it in southern Ghana (Dorkeno and Elworthy 1995). Prevalence in the country is estimated between 20-30 percent. A population survey conducted on 5,275 women

in the Kassena-Nankana district in 1995 showed a prevalence of 77 percent among all women interviewed.

In 1996, a series of investigations were carried out to clarify the nature of FGM in the Kassena-Nankana district (Adongo et al. 1998b, Mbacké et al. 1997). These studies used a combination of social science and clinic-based research methods. These consisted of four components: a series of focus group discussions and in-depth interviews conducted in 1996 to inform on community perceptions and justifications of the practice; a facility study of women seeking prenatal care at different clinics conducted in 1995-96 to provide information on the different types of FGM that are practiced in the study area; a school-based survey of girls in 3 senior secondary schools and the Teacher Training College conducted in 1996 to measure the prevalence among school girls; and a competitive series of essays written by youth to provide information on the perceptions and attitudes of the younger and educated generation. Findings from these studies, with an emphasis on community legitimization of FGM, and the correlates of the practice in the district, are presented in the section that follows.

Social Legitimization of FGM

Gender identity. Supported by the norms and beliefs of patriarchal society (Adongo et al. 1998b), FGM is often believed to be crucial to the feminization of girls. The clitoris is seen as the female equivalent of the penis, and until it is removed a woman is considered masculine. Therefore, a woman has to be circumcised in order to distinguish her from a man. Women who die uncircumcised are buried as men and their funerals are also performed as that of a man. Sometimes the clitoris of a woman who dies uncircumcised is removed before burial. To avoid humiliation after death,

Box 8.4

Kologo young woman
In the rural areas, if they know that a girl is not circumcised and she dies, she would be buried like a man, simply because she has not undergone circumcision. And her funeral too is performed like that of a man.

Navrongo elderly female teacher
Uncircumcised woman's funeral is performed like that of a man. They are also given a type of calabash, which is bitter in taste instead of a clean washed one. It is broken for the corpse to send along. We call it "Kunkolo chiys". Normally, this is done for men.

Navrongo young male teacher
There is also this belief among the Sisala (a tribe in the Upper West region of Ghana) that the clitoris is seen to be the male part of a woman and needs to be removed to make you a real woman; if not then you will just be like a male with breast.

women are compelled to undergo circumcision. Discussants identified this as a major factor contributing to circumcision in Box 8.4.

The clitoris is also said to induce aggressiveness in women; its removal helps girls to develop personality traits that are more feminine (docility, obedience, and self restraint). When uncircumcised women are involved in premarital or extramarital sex, or otherwise deviates from the norm, their behavior is attributed to the clitoris. (Box 8.5).

Box 8.5

Young woman
The reasons why they (the community) practice female circumcision (then she pauses) is to reduce the sexual sensitivity in young girls.

Navrongo young female teacher
I learnt that in the olden days, most of the men were hunters, so they circumcised their wives and girls to be able to wait for them to return from their expeditions and they wouldn't have that feeling for men. If you happened to marry to a man who has more than one wife, you will be able to stay with your rivals and not quarrel with them because of sex. (The others laughed.)

Daughter's role during parents' funeral rites. Circumcision is part of a more general set of religious and spiritual values concerning the role of women in society. Daughters play various religious and spiritual roles in the performance of final funeral rites of their mother. The most significant role daughters perform during funerals is the holding of a calabash during their mother's final funeral rite and also holding of the tip of their father's burial mat. This is the last respect paid to mothers by their daughters, and uncircumcised women are forbidden to hold the calabash during final funeral rite of their mothers' funerals. For this reason, most parents especially mothers will encourage their girls to undergo FGM. This was emphasized by respondents in Box 8.6.

Box 8.6

Kologo young woman
It is believed that when they (women) don't excise they cannot perform their mothers' funeral when their mothers die.

Navrongo female teacher
Supposing you are not circumcised, it means that for example, if your father dies and you are the first daughter you are supposed to hold the back of the mat because we bury with mats. So while the undertakers are carrying the corpse outside the house, you are supposed to go with them by holding the tip of the back of the mat. If you are not circumcised, you cannot do it. (Then the others laugh in the background.)

Social derision among women. One of the reasons for circumcision is the fear of mockery and ridicule among women themselves. It is very common for women to mock uncircumcised colleagues when they gather at social places such as a water source, or during funeral and marriage ceremonies. Uncircumcised women are seen as inferior and

cowards. Ridicule is particularly humiliating if invoked by rivals during quarrels. The ultimate insult to a woman is to be called a man because of her clitoris. Children of uncircumcised women are derisively referred to as clitoris children. Several women of reproductive age expressed this view as a reason for women undergoing circumcision (Box 8.7).

Box 8.7

Kologo young woman
If it also happens that you have undergone the exercise and you are married to a man who has another wife who hasn't been circumcised, in a quarrel with your rival, it is the first thing you would use as an insult to the rival. This is done by the woman saying to the rival 'you are a man and you are sleeping with a man'. You, the uncircumcised woman is now a man. So how do two men have sex? And that forces some girls, who are already married and given birth to about four children to go in for the exercise because your friends tease you.

Kologo young woman
Our mothers did it and if you didn't do it they insulted you that you had a clitoris. People may even go as far as insulting your child that he/she is 'a child of a clitoris' (laughs) (that is a child born of an uncircumcised woman).

Pungu elderly woman
Even if your colleagues insult you, it will not annoy you like your rival's insults will, especially when she is circumcised and you are not. She may intentionally insult your child to affect you indirectly and this will be very painful. (A child cries) She knows the child has nothing to do with circumcision but she will use that to insult him/her and that will be indirectly targeted at you.

There is a belief that children who pass through the clitoris during birth are destined to be stubborn and disrespectful. Some men desire circumcised wives to avoid parenting children who will become social deviants, as observed by a male respondent in Box 8.8.

Controlling female sexuality and reproduction. It is believed that the clitoris increases desire for sex and therefore is the main cause of pre-marital and extramarital sex among women. The argument is that the clitoris erects and increases the desire for sex among girls at puberty. The removal of the clitoris is believed to reduce or suppress sex drive among girls, thereby reducing pre-marital sex and hence, teenage pregnancy. This observation by male teachers appears in Box 8.9.

Box 8.8

Navrongo young male teachers
It is also believed that it (the clitoris) also erects like the male organ (they all laugh); and also that if you are not circumcised and you bring forth a child, such a child will be very troublesome and disrespectful. So if you don't want to have disrespectful children you need to remove your clitoris.

In a polygynous society, it is feared that female sexual desire can lead to familial discord. It is believed that FGM reduces libido in women thereby protecting the family from disharmony and protects women from conflicts. With FGM women in polygamous unions may not have sex

with their husband as frequently as they may desire; but without the clitoris they will willingly and passively wait for their husbands to come to them. FGM is thus seen as a way of ensuring harmony within the family by regulating female sexuality.

Erroneous health beliefs. After circumcision, girls are confined in one place and fed well until they are healed. This often leads to noticeable weight gain at the end of the period. An important rationale for FGM is the belief that girls become plump and more beautiful after circumcision, attracting suitors to girls and gifts for their parents. Girls therefore seek circumcision to enhance their beauty and increase their marriage prospects (Box 8.10).

Box 8.9

Navrongo male teachers

It is also believed that when you get to the puberty age and you have any affair with a boy you can become pregnant. With the clitoris you can easily be in the mood and you will itch to get to a boy; but without the clitoris you don't easily come on 'heat' (have the urge for sex) (Male teacher; FGD, Navrongo).

To add to what my colleague has said it was also used to prevent teenage pregnancy. This is because it was considered a taboo for a girl to have premarital sex and a girl could even get to about twenty-two years before having sex. Once the clitoris is removed, you do not easily become sexually aroused and it prevented girls from becoming pregnant at a teen age.

Box 8.10

Pungu old woman

You see when a woman circumcises, she is fed well so by the time the sore will heal she would look fresh and fat. Those of them who do not like eating too, by the time the sore will heal they would also have appetite for food and be fine. You will also notice that when a girl circumcises, she grows plump and nice and when she delivers her child will be fine and healthy. At the initial stage when a circumcised girl marries, she will not be regarded until she gives birth and starts to grow then people will notice her beauty. Nowadays the girls do not want to be circumcised and they become pregnant at an early age when they are not well matured.

The Kassena and Nankana people differentiate between two types of clitoris, the male and female. The male type of clitoris is believed to be the main cause of obstructed labor and therefore its removal facilitates delivery. In communities where access to modern health care is low and modern communication is limited, the idea that FGM facilitates delivery is common among elderly traditional birth attendants.

Correlates of FGM in the Kassena-Nankana District. While in most populations, the practice is done before the age of puberty, in the Kassena-Nankana District, it occurs after

puberty, when girls are ready for marriage. The proportions circumcised by age show that, by age 25, the majority of women have undergone the practice (Table 8.18) .

The women included in the facility-based survey report a mean age of 15.5 years. Eighty percent of women report to have undergone FGM between exact ages 10 and 20. The majority of them (62 percent) are circumcised between 15 and 19 years of age. This clearly points to the fact that, in the Kassena-Nankana District, adolescents constitute, at any given time, the bulk of the population at risk for the practice.

Table 8.18 Mean age at FGM and FGM types, Kassena-Nankana District, 1996

		FGM types			
Characteristic	*Mean age at FGM*	*Clitoridectomy*	*Excision*	*Infibulation*	*Total*
Age group					
15-19	13.9	28.6	28.6	42.9	100.0
20-24	14.6	30.6	55.6	13.9	100.0
25-29	15.8	30.6	67.3	2.0	100.0
30-34	15.6	44.2	55.8	0.0	100.0
35+	17.3	26.1	69.6	4.3	100.0
Ethnicity					
Kassim	14.7	45.1	47.9	7.0	100.0
Nankam	16.5	22.9	67.5	9.6	100.0
Other	14.7	36.4	63.6	0.0	100.0
Religion					
Traditional	16.5	31.9	61.1	7.1	100.0
Christian	13.8	32.6	55.8	11.6	100.0
Muslim	11.8	55.6	44.4	0.0	100.0
Schooling					
None	15.8	36.7	57.0	6.3	100.0
Primary	14.7	19.2	69.2	11.5	100.0
Higher	14.2	27.3	54.5	18.2	100.0
Total	**15.5**	**33.3**	**58.8**	**7.9**	**100.0**

Source: Mbacké et al. 1997.

Table 8.18 also informs on the types of female circumcision that are prevalent in the district. The majority (59 percent) of women who have been circumcised have had an excision. One- third have undergone a clitoridectomy and only 8 percent had an infibulation. Only 21 persons out of the 267 who were circumcised have undergone infibulation and three quarters of them (15) are in the 15-19 age group. Among the different social categories listed in Table 8.18, only the Muslims appear to favor clitoridectomy, which is also known as “sunna circumcision”, where sunna means a recommendation by Islam.

Multivariate analyses presented in Table 8.19 show that, from age 15, one additional year of age increases the probability of being circumcised by 42 percent on average. However this effect is concentrated in the teen years where the proportion circumcised increases very fast with age. Christians and Muslims are less likely to be circumcised than those who practice African traditional religions. The probability of being circumcised is 48 percent lower among Christians and 43 percent lower among Muslims.

In Kassena-Nankana society, FGM is a precursor to marriage. Even if a woman is not circumcised before her marriage, she is very likely to do so immediately after marriage as suggested by our focus group discussions. Table 8.19 reveals far higher prevalence rates among ever married women at all ages. Everything else (age, ethnic group, education) being equal, ever married women are 2.8 times more likely to have undergone FGM than those who are still single.

Table 8.19 Logit regressions (all women) of FGM status on selected covariates

Variable	*Odds ratio*	*z*	*P>|z|*	*[95% Conf. interval]*	
Age	1.422	9.222	0.000	1.320	1.533
Christian	0.520	-6.712	0.000	0.429	0.629
Muslim	0.589	-2.802	0.005	0.407	0.853
Nankam	0.833	-1.918	0.055	0.692	1.004
Bulsa	0.952	-0.216	0.829	0.610	1.486
Other ethnicity	0.184	-6.482	0.000	0.110	0.307
Primary	0.609	-4.742	0.000	0.496	0.747
Higher	0.175	-13.449	0.000	0.136	0.226
Ever married	2.770	7.699	0.000	2.137	3.590
Age^2	0.996	-6.360	0.000	0.995	0.997
Number of observations	5270				
Chi^2 (10)	2030.840				
Prob > chi^2	0.000				
Pseudo R^2	0.359				
Log likelihood	-1816.745				

Notes: Dependent variable = FGM.

Education has a highly significant effect on FGM practice. Having attended primary school reduces the likelihood of being circumcised by almost 40 percent relative to those who have never been to school. The reduction is about 84 percent among those who succeed to go beyond the primary level. The results of the school-based survey are consistent with this finding. Despite the fact that the 410 respondents were all within the high-risk ages (14 to 32), only 6.4 percent of them were circumcised, and almost all uncircumcised respondents expressed their unwillingness to undergo the practice in the future. This unwillingness to undergo the practice is partly due to the fact that the majority of them (56 percent) believed FGM can lead to serious

health problems. Furthermore, success in school definitely strengthens the bargaining power of girls who do not want to be circumcised.

Conclusions on FGM

The studies on female genital mutilation (FGM) provided useful information on the practice among the Kassena-Nankana. Several sociocultural factors were found to be the basis for community legitimization of the practice. These include gender identity, daughter's role during parents' funeral rites, social derision among women, control of female sexuality and reproduction, and a host of erroneous beliefs about positive aspects of FGM. Unlike in other African settings, age at circumcision is 15 years. With respect to correlates of FGM, the large effect of education must be noted.

The results from the FGM studies will have a bearing on the FGM intervention being planned by the CHFP. Because FGM is deeply rooted into the Kassena-Nankana society, such an intervention should take into consideration Dawit and Mekuria's argument that force cannot change traditional habits and practices, particularly those, like FGM, that have been part of the social fabric for many centuries.

CHFP research on FGM is conducted to set the stage for a forthcoming cohort study of FGM eradication. As in the case of family planning introduction, effective social action on the FGM initiative requires a comprehensive understanding of community perceptions of FGM and social resources for the eradication effort. It is clear from this investigation that the FGM initiative will have to be more comprehensive than merely IE&C on this issue. A sustained system of outreach will be required, involving traditional leaders, parents, providers, and young women.

Conclusion

The Navrongo experiment is not only a factorial trial; it is also a framework for operations research and problem solving. Studies are conducted within the CHFP with the aim of improving operations, enhancing service quality, and broadening the regimen of care. This chapter has reported on three initiatives that best exemplify this program of operations research within the CHFP experimental design.

Chapter 9

Overall Implications and Recommendations for Scaling Up Operations

Introduction

The Navrongo Experiment has been launched for three policy audiences: The three northern regional authorities of the Ministry of Health in Ghana, the national health policy community, and the international policy community of scholars, program planners, and donors who seek general lessons about the design and impact of family planning and reproductive health for sub-Saharan Africa. To some extent, lessons from this project are shared by all three audiences. This chapter first considers lessons and implications for each audience and concludes with policy themes common to all three. Discussion of regional and national implications addresses questions about the rationale for scaling up the Navrongo Experiment and the relative merits of alternative approaches.

The international policy audience. The principal issues motivating the CHFP are outlined in Chapter 1. Only a few experimental studies exist which demonstrate that family planning services actually have an impact on contraceptive use. No study has demonstrated fertility or mortality effects of community health programs. Contraceptive use has been demonstrated to be affected by services, and various components of health care programs are known to be effective, but the demographic implications of launching a comprehensive community health program are unknown. International funding for the CHFP was justified because international investment in community health and family planning continues to be the subject of strategic debate. Resolving debate requires sound scientific evidence.

Ever since the Cairo ICPD, international policy attention has been directed to questions about reorienting family planning programs to integrated reproductive health programs. The ICPD agenda directs further attention to the need for decentralized programs that are sensitive to local cultural conditions and responsive to the needs of families. The Navrongo Experiment has been launched in this era of ICPD issues and concerns.

In the era of structural adjustment and resource constraints, there is growing international interest in effective resource utilization, cost effectiveness, and sustainability. Not only must

experiments demonstrate that services can work, there is a need for effective models for decentralization, utilization of resources, and community involvement.

The national policy audience. The role of Navrongo in guiding policy in Ghana concerns issues specific to population policy and more general issues related to primary health care. Prior to independence in 1957, health services were modeled on the British system with a strong focus on hospitals' clinical care located in large trading centers. The beneficiaries were initially colonial administrators and traders; only later on were "natives" who worked for the colonial administration provided for. Rural people and the urban majority were largely ignored. With independence, the "Basic Health Service" model was adopted. This model emphasized the expanding access to all Ghanaians through a network of health centres and health posts linked to hospitals. To sustain this commitment to increasing the number of facilities, an extensive training program for physicians, nurses, and midwives was launched. Although the investment in expanding health resources was large, results were disappointing. The Government of Ghana 1978 Primary Health Care (PHC) strategy paper summarized this dilemma: "Despite the infusion of resources into the health sector, health services have improved very little."

The 1978 paper outlined the mechanism to achieve better coverage in health care by utilizing strategies for implementing services that were deemed essential to achieving the goal of Health for All by the year 2000. To extend services, a large commitment was made to train low-cost health care providers—the VHW discussed in Chapter 1 (also called Community Clinic Attendants (CCA)). A review of their performance in 1995 showed a high attrition rate among the CCA, various quality lapses, and widespread organizational difficulties. Moreover, problems arose with various vertical programs designed to embrace paramedical worker effectiveness.

Often referred to as the eight components of PHC, these programs had national plans, secretaries, budgets, and donor support. Thus the UNICEF sponsored GOBI, FFF, UCI, and the Bamako Initiative defined the policy thrust of health care in Ghana in the 1980s. However, by the end of 1995, it was clear that not much progress had been achieved. Improvement in health facilities has been much slower than expected, use of health interventions has been much lower, other services that impact on health have not been optimally implemented, and collaborative partnerships with other sectors, with communities, and individuals have been weak. Most importantly, community health and family planning had yet to become available at the village level.

In the population sector, categorical programs were developed with little formal link to PHC or the other categorical vertical programs. Thus, when the Cairo International Conference on Population and Development (ICPD) consensus called for a broadening of the service regimen to include reproductive health and an extension of communication and outreach to include men, MOH systemic resources for implementing new goals were unclearly articulated. For the most part, the ICPD agenda has not been implemented in Ghana.

To institute a more systemic approach to health care mobilization, the MOH adopted health sector reforms and policy strategies in a 1996 policy document termed the "Medium Term Health Strategy" and a supporting "5-year Programme of Work (5YPOW)." Taken together, these reforms became the basis for national health care development, with 1997 being the first year of implementation.

The local policy environment. Recently promulgated national policy reforms have generated unprecedented requirements for research and demonstration at the District level. In the past, programs were centrally planned and administered as categorical initiatives. In the future, resources will be allotted to Districts where funds must be used for local needs and priorities. The CHFP serves as an example of practical procedures for micro-planning and evidence based program development at the District level. Health needs assessment, conducted in conjunction with CHFP-like community consultation, can provide a framework for rapid transformation of health programs from facility based approaches to community based care. The CHFP is thus a research initiative with an overarching goal of developing a service delivery model for demonstration and replication.

Elements of the Navrongo experiment that are to be demonstrated, however, are more likely related to the process of program development than the operational contents of the CHFP design. Thus, a given district may chose to use a program of outreach to groups of women rather than compound based service delivery; or, a somewhat different approach to organizing voluntary services may be appropriate. As the Navrongo experiment is scaled up, a variety of contrasting operational designs will emerge. What should be common to all systems developed on the Navrongo model, however, is the general notion that health care will be taken to the people and that communities served by the program will be involved in its design, management, and evaluation over time. Navrongo provides a case study where this community based policy reform approach has been demonstrated. International themes of the policy relevance of

Navrongo (left hand column, Figure 9.1) define the underlying goals of strategic changes. By developing the strategies listed in the figure, Navrongo represents a field site where decentralized community based planning has been demonstrated. In the next phase of project activity, the CHFP can utilize its field site and experience to foster this capacity in neighboring Districts and Regions of northern Ghana.

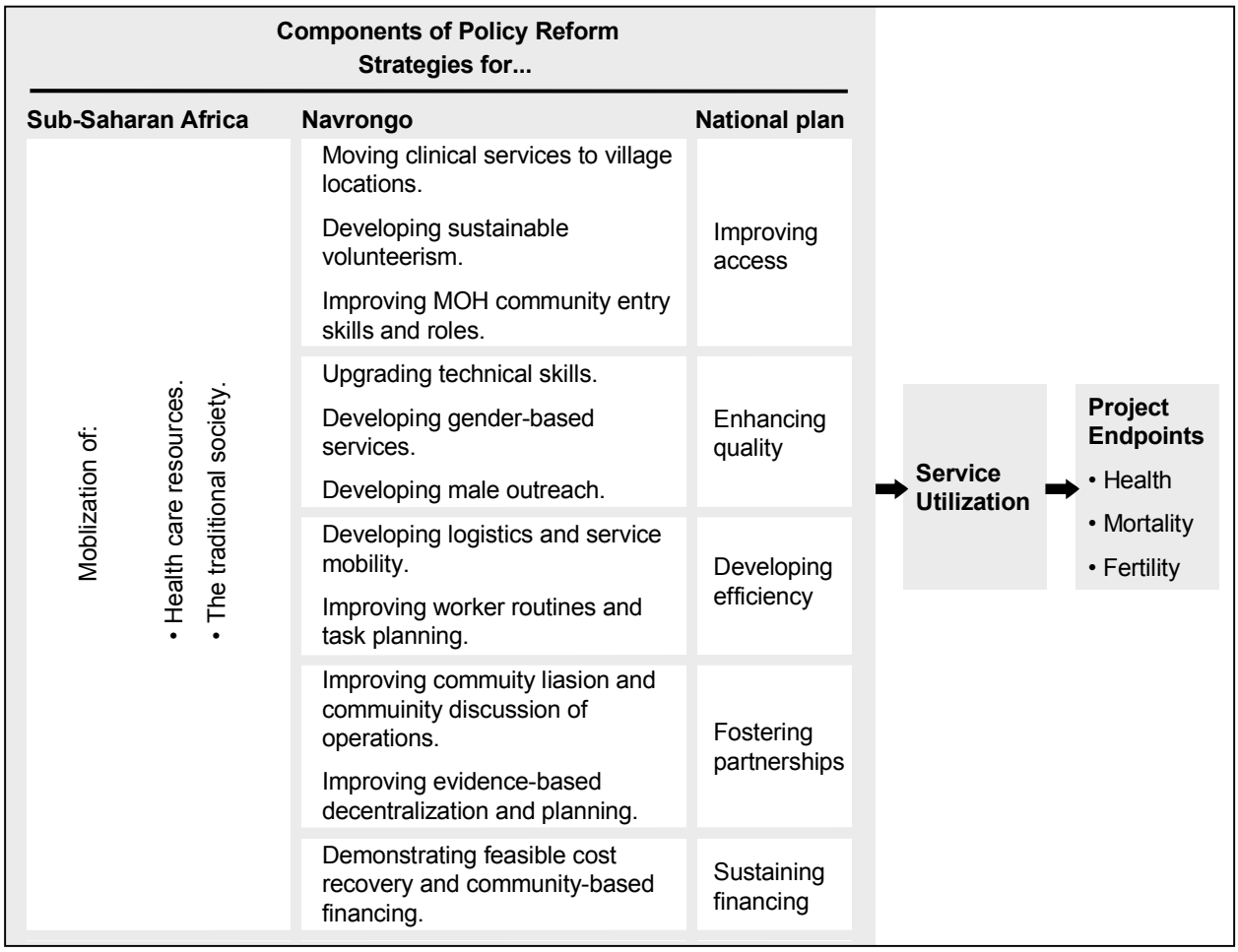


Figure 9.1 Strategic components of policy reform in the 5YPOW, the CHFP, and international initiatives for improving health services

The Health Reform Process and the CHFP

The reform process is premised on the fact that the availability and use of health intervention is constrained by five systemic problems that affect all program implementation. By addressing these issues, Navrongo has demonstrated means by which health status improvements of

Ghanaians can be achieved. Consider, for example, the Navrongo strategies in Figure 9.1 in reference to the reforms. These objectives are directed toward resolving these issues and are often referred to as the "5 pillars" of reform in Ghana to:

- **Improve access to health care through elimination of geographical, sociocultural, financial, and regional barriers to service delivery.** The CHFP has demonstrated low-cost procedures for developing CHC and compound outreach services. Activities directed to groups of men and women, community durbars, and other strategies show that health and family planning care can be convenient, inexpensive, and linked to socially acceptable activities and respected individuals.

- **Improve quality of care of service provided at health facilities by making them people-centered by taking into account the perspective of clients, and improving technical competencies of providers.** The CHFP demonstrates ways of training workers, developing community monitoring, and supervising volunteer activities that improve service quality.

- **Improve the efficiency of use of resources and avoiding waste by:**

    - *Creating the Ghana Health Service as a mechanism to deal with organizational inefficiency.* The Navrongo experiment demonstrates practical means of extending the GHS concept to the periphery: CHO in the experiment should be viewed as the front line workers of the new GHS.

    - *Improving the planning process through better linkage of resources to outputs.* The Navrongo experiment demonstrates ways to budget community health programs, recover costs for essential drugs, and train village committees in basic program management methods.

    - *Improving human resources, planning, and development including in-service training.* Staff assigned to fixed facilities often sit idle, awaiting patients that never arrive. Active outreach solves this problem; in-service training is needed to show workers how to reorient their time and effort to community based services.

    - *Improving MIS.* MIS activities of the MOH has been oriented to compiling output data for reports to higher authorities. The CHFP has changed MIS to a system for monitoring worker coverage and activity so that MIS serves the management needs of primary service providers and supervisors.

    - *Improving support and supervision.* The CHFP demonstrates the importance of providing systemic support for front-line workers: support from chiefs and elders, support from women's groups, support from men, and support from clientele. Achieving this systemic support, requires supervisory organizational work that is unconventional for MOH workers: liaison with chiefs, community leaders, etc. is very different from checking on workers or their records. The CHFP provides a field demonstration of this program.

- *Improving logistics, supply, and transport systems.* National plans aim to improve logistics, supply, and transportation. The CHFP demonstrates simple procedures for "supply-pull" logistics whereby community committees maintain stocks of essential drugs and MOH staff respond to community supply needs.

- *Improving estate management.* Communities are willing to construct and maintain village based service delivery points, using traditional materials and volunteer labor. This reduces facilities costs greatly, and increases service proximity.

- **Foster closer partnerships with other providers and with the community.** This report documents experience with community dialogue in Kassena-Nankana District. Procedures and mechanisms will differ by locality, but it is important for the Ministry to train staff in community entry and dialogue methods. Prior to the experiment, MOH staff were trained in health services alone. A health technology approach will fail to meet the needs of Ghanaian communities.

- **Ensure financial sustainability by exploring various funding mechanisms, including insurance systems.** Navrongo demonstrates ways in which communities can contribute to the goal of achieving sustainable health care.

Implications for Community Health and Population Programs

Lessons have emerged from the CHFP that are relevant to both international and national policy deliberations:

- **Despite economic and social conditions that are unfavorable to the introduction of family planning, fertility will decline if programs are appropriately designed and sensitive to cultural conditions and needs.** When communities are consulted about their preferences, they provide advice on the management of care and communication strategies that is crucial to the design of community health care. Mobilizing all sectors of the society at the peripheral level (community systems, health care systems, and political systems) contributes to sustainability and impact. Communities will donate labor, leadership, and materials if the health program provides training, technology, and clinical expertise.

- **An integrated approach to service delivery (health and family planning) is more desirable than a categorical delivery of component services.** Although the design of the experiment does not specify treatments to evaluate this proposition, social research in the baseline indicated that the demand for health care was so prominent in discussions of the rationale for family planning, that there was no point in testing the integration hypothesis. The case for delivery of integrated services was made repeatedly and powerfully by all age groups, both genders, and by leaders of communities to be served by the project. When an integrated service package was implemented at the village level by a multi-purpose provider working with community institutions, more health service

was provided than is provided at fixed "Level B" facilities. The integrated approach of the CHFP involves the health and family planning service regimen described in Chapter 2.

- **A system-wide approach is more appropriate for developing operations than a component approach.** The CHFP project identified problems affecting the health sector as a whole. It did not set up parallel systems and vertical service delivery structures that would be difficult to replicate. At all stages in this investigation, the CHFP has operated as a complete model health service delivery system.

Implications for Replication

The CHFP model must be replicated in the context of the health sector reforms, particularly at the district level. This can be achieved through two broad sets of activities:

Mobilizing the MOH system. It is clear from project experience that there are untapped resources in the MOH system that can be deployed to village operations. The MOH has defined priority health interventions to be made universally available to all Ghanaians. Even though these interventions constitute a package, they must be reordered and tailored to the needs of communities if they are to achieve the desired impact. A process for seeking community advice on what services they desire and how to improve on the delivery method is essential. This process involves repeated meetings with chiefs and elders, consultation with community laity, and use of traditional *durbars* to solicit open discussions of reactions, opinions, and questions from the community. It involves a critical step in planning with communities.

The CHFP project has demonstrated the following key findings about dimensions of the experiment:

- **Deployment of staff.** Existing health staff can be more efficiently deployed to overcome geographical barriers to service delivery without resorting to construction of more fixed clinics. A CHO adequately trained and provided with basic logistics such as a bicycle and essential drug supply, adequately extended service coverage of the "Level B" facility.

- **Improving clinical skills.** The quality of care improved considerably through staff retraining, the use of essential drugs, and improvement of the facilities. A well-structured in-service training program, conducted on the job, at frequent intervals, and tailor-made to meet the need of all staff, is possible and preferable. Such training can be designed and supported at the district level.
- **Implementing community-based services.** The CHFP has demonstrated that house-to-house provision of services is possible. Home visits are usually conducted by MOH staff,

especially CHN. However, these visits are not structured and without guidance. However, house-to-house services are welcomed and acceptable. What is required is that:

- *Work routines* must be established that assign CHO to a catchment number of people who must be listed and known to her. In the CHFP, one CHO was assigned to 300-500 compounds which are covered every three months.

- *Transportation* in the form of a bicycle was needed to ensure regular contact with households. Attention must therefore be paid to sustaining the pace and quality of contact. Other logistics such as essential drug provision must therefore not be disrupted.

- **Provision of field support.** Current supervision arrangements tend to "police" activities of health staff rather than serve as a collegial approach to providing support and assist with problem solving. The existing system can be improved to achieve better work performance by:

  - Planning for supervisory training, emphasizing problem identification, problem solving, and resource mobilization.

  - Providing social support that recognizes the role of the partner of CHFP and building "community support" for CHN.

  - Providing peer support in which meetings with the health staff creates awareness of mutual problems and develops mechanisms for solving them and sharing experiences.

- **Improving the utilization of information.** The CHFP has demonstrated ways in which the quality and utilization of existing routinely collected data can be improved upon. The information to be collected can be designed to meet the needs of policymakers, supervisors, and DHMT. Routine MIS data can be supplemented by carefully analyzed data. Utilization can be enhanced by organizing staff meetings at which information is discussed. Emphasis is placed on narrative reporting and problem solving.

- **Managing logistics support.** Logistics planning can be done to support requisite transportation, fuel, and other supplies. Staff schedules must be planned to include days off due to illness, frequent weekend travel, and leave. A regular drug acquisition and re-supply system to the health centres and CHO is needed.

Mobilizing the community. Previous efforts at mobilizing communities in planning, implementing, and supervising health care delivery relied extensively on the VHW scheme and pre-selected community institutions. This approach failed, however, because communities were marginalized and the MOH support system broke down. Accountability of health staff to

communities has been absent in the scheme and there was no "bottom-up" mechanism to ensure that higher levels of the MOH hierarchy responded to community needs and aspirations.

To meet the objective of improving collaboration with other partners, particularly communities, some broad activities undertaken by CHFP that can be replicated are stated here:

- **Understanding of traditional cultural resources is an important first step in mobilizing the system.** There is often a hierarchy of chiefs, lineage, and elders within a traditional authority structure. A community-assessment procedure should unscramble this structure and help identify opinion leaders and mechanisms for organizing community activities and support that can be utilized. The mechanisms for eliciting community consensus such as use of *durbars* or other such resources must be clearly understood.

- **Developing a volunteer system requires careful planning and preparation.** Often it takes a number of visits to the community to explain programs, hold discussions, seek advice, and establish rapport. Volunteers identified and recruited must be subjected to a community approval system and must also be approved after training. The volunteers selected must have rapport with linkage in a community health committee (YN) derived from the ranks of existing traditional network leaders.

- **Defining rules and responsibilities of the volunteers, chiefs, elders, the MOH system, and the political system is important.** Tasks and service regimen of volunteers must be made clear to them. Any logistic support and its purpose must be clear to the community. Similarly, the functions of the community support system must be clear to both the community and volunteer.

- **Training is required.** Training must be extensive and continuous. It must involve not only the volunteers, but the YN itself. A structured syllabus is required; incentives must be built into the training.

- **The volunteer program must be linked to the community-based service delivery of the CHO.** When a partnership is developed between the two, the volunteer recruited from the community can be used as a resource that is knowledgeable about the traditional system.

- **The political structure must similarly be understood.** The planning cycle of the district assembly must be used to assist district health planning.

- **Management of the community-based system requires new competencies on the part of MOH staff.** MOH will require skill in community diplomacy, community entry skills, in supervisory skills, and logistics management including drugs and supplies. Its implication lies in the content of in-service training that is mounted for the MOH staff, especially at the subdistrict.

Scaling Up

The need for a scaling-up initiative. The CHFP project has demonstrated its relevance in meeting the goals and objectives of the health sector reforms. It has shown that the direction and policy thrust of the reform process based on the "5 pillars" are feasible and can work at the district level and achieve the desired impact of increased uptake in health interventions.

Mechanisms for scaling up. The challenge posed now is what will be the mechanism to ensure that lessons learned are replicated in other districts.

- **National planning.** The scaling up plan must be compatible with the documented national 5YPOW, but reflect the underlying philosophy of the Navrongo Initiatives and local conditions and needs. Failure to incorporate the scaling up plan in national plans could lead to a situation in which the scaling up operation is seemingly at odds with documented national policies and priorities.

- **Dissemination.** There is a need to disseminate the findings to the entire policy audience and to program people at the operational level. The NHRC must develop a dissemination plan specifying audiences, messages, mechanisms, and channels of communication appropriate for each audience.

- **Training.** There is a need for a training program. This will require clarification of all elements of the training process, likely participants, and mechanisms. At present, Navrongo lacks adequate documentation of its service delivery innovations. There is a need for a systematic program of manual preparation for such topics as "Developing Community Entry," "Involving Communities in Planning," "Posting Staff to Village Locations," "Developing Volunteerism," "Building and Maintaining Compounds," etc. All elements of the Navrongo experiment require manuals documenting practical experience and suggestions.

- **Quality assurance.** Scaling up must be pursued with attention to quality assurance. Not only is training needed, but mechanisms must be in place to assure the highest possible level of service quality.

- **Social discord and gender.** Rapid dissemination of contraceptive distribution programs runs the risk that approaches could cause social discord, male opposition, and violence against women. Scaling up the Navrongo initiative must incorporate mechanisms for gender-based appraisal of social impact and strategies for minimizing social discord and violence against women.

- **Change agents.** There must be arrangement for technical support for the change process. Navrongo represents a model site where a working service delivery system can be observed and emulated. Navrongo staff can serve as change agents by fostering the creation of additional model sites and a process of replication.

- **Identifying resources.** In the current reform process, mechanisms have been established to provide funding for programs. It is important that this new system of resource allocation be used to support the scaling up program so that scaling up is not be seen as another external initiative, vertical program, or parallel activity. Resources for scaling up should be the mainstay of program implementation at the district level. What the CHFP has done is only to demonstrate that it is feasible to reform health care delivery from the periphery and that this reform process can achieve the desired impact.

- **Phased implementation.** Micro-pilot learning in Navrongo provided a rapid means of learning-by-doing. Within three months of micropilot activity, most of the key operational lessons had been learned. A six month micropilot is probably more time than is required to develop experience with the model. A step-by-step process should be employed involving micropilots followed by district implementation. Navrongo could be used as a training site for micropilot development. Each district would build distinctly different operations based on local micropilot experience.

- **Evaluation.** Mechanisms for evaluation should be developed that shift the research agenda from demographics to operations. The critical issue to be addressed in the next stage is whether or not plans are implemented, village services are developed, and operational change has taken place. Situation analysis methods are likely to be informative in this type of research agenda.

A proposed process for scaling up. The Ministry has decided to utilize the Navrongo pilot approach for "participatory planning" in the three northern regions. Navrongo experience with scaling-up within Kassena-Nankana District may represent a useful framework for fostering evidence based strategic planning and decentralization in the regions of northern Ghana. An eleven step process has been drafted for further discussion within the Ministry which involves using the existing Regional Health Forum as a mechanism for review and discussion of the Navrongo experiment, followed by a pilot replication project in each participating region. Pilots then serve as demonstration areas for dissemination of pilots within each regions, ultimately equipping each district with a demonstration area. According to capabilities, local resources, and needs pilots are then scaled up throughout the northern regions of Ghana. Details of this step-by-step, learning-by-doing, approach are still under discussion, but it seems likely that research stations elsewhere in Ghana will be invited to assist in the process.

Conclusion

In the past three decades, international conferences have been convened for the purpose of fostering health care improvement and population policy development. The Alma Alta goal of

"Health for All by the Year 2000" remains a distant dream for most families living in rural Sahelian communities. Conferences convened to implement the Health for All agenda, such as the Bamako Initiative, have had a major impact on the strategic design of primary health care programs. However, the Bamako Initiative approach to providing sustainable primary health care often failed in practice because communities were not adequately trained to manager services, nor were health professionals sufficiently involved in supervision of the scheme. In the population sector the Cairo Conference and the Beijing Declaration expanded the agenda of population programs by fostering development of reproductive health at the community level. However, this expanded definition of reproductive health is still narrow from the perspective of rural African communities seeking improved access to health care. The Navrongo Initiative demonstrates an effective and feasible approach to the Bamako concept while providing care that all community members want. Children need comprehensive primary health care; men want their health problems dealt with; women need health care that extends beyond reproductive health. Existing MOH resources can be efficiently mobilized to provide the needed services without extensive additional resources. Thus, the Navrongo Initiative accommodates the aims of Bamako and Cairo, is broader than either initiative and the international health policy strategies that have come before.

Ever since 1977, the Ministry of Health has aimed to place services in villages and hamlets. Nonetheless, fully 85 percent of the budget is committed to tertiary care; 1977 plans for village based health and family planning services remain a distant goal. Navrongo has demonstrated what a village based system of care entails, a process for developing it, and mechanisms required for expanding the project to a national service delivery system.

Most importantly, Navrongo brings the process of service delivery, planning, and management to the village. Throughout Africa, resources of health bureaucracies remain focused on facilities and programs rather than the people to be served; throughout the region, powerful social institutions that govern daily life are ignored by planners and service providers. Effective partnership between programs and communities can mobilize resources for primary health care and family planning, improve coverage, and contribute to wellbeing.

Bibliography

Abu, K. 1983. "The separateness of spouses: Conjugal resources in an Ashanti town." In *Female and Male in West Africa* (Edited by Christine Oppong), pp. 156-168. George Allen and Unwin, London.

Adongo, Philip, Phillips, James F., and Fred N. Binka. 1998a. "The influence of traditional religion on fertility regulation among the Kassena-Nankana of northern Ghana." *Studies in Family Planning* 29 (1): 23-40.

Adongo, Philip, Akweongo, Patricia, Binka, Fred, and Cheikh Mbacké. 1998b. "Female genital mutilation: socio-cultural factors that influence the practice in the Kassena-Nankana district." NHRC Working Papers Series No. 7. Navrongo, Ghana: Navrongo Health Research Centre.

Bawah, Ayaga Agula, Patricia Akweongo, and James Phillips. 1998. "Women's fears and men's anxieties: Understanding and managing the social impact of family planning in Northern Ghana." Paper presented at the Population Association of America Annual Meeting, Chicago, 2-4 April.

Binka, F. N., G. H. Maude, M. Gyapong, D. A. Ross, and P. G. Smith. 1995a. "Risk factors for child mortality in northern Ghana: a case-control study." *International Journal of Epidemiology* 24 (1): 127-135.

Binka, Fred, Alex Nazzar, and James F. Phillips. 1995b. "The Navrongo Community Health and Family Planning Project." *Studies in Family Planning* 26 (3):121-139.

Binka, Fred N, Pierre Ngom, James F. Phillips, Kubaje Adazu, and Bruce B. MacLeod. 1997a. "Assessing population dynamics in a rural African society: the Navrongo Demographic Surveillance System." Paper presented at the IUSSP General Population Conference, Beijing, 11-17 October.

Binka, Fred N., Mensah O. A., and A. Mills. 1997b. "The cost-effectiveness of premethrin impregnated bednets in preventing child mortality in Kassena-Nankana district of Northern Ghana." *Health Policy* 41: 229-239.

Boserup, Ester. 1985. "Economic and demographic interrelationships in sub-Saharan Africa," *Population Development Review* 11 (3): 383-397.

Brenzel, L. 1997. *Principles of Cost-effectiveness Analysis of Health and Population Services* (draft). Prepared for the Safe Motherhood Demonstration Project Training Session. Unpublished.

Caldwell, John C. 1976. "Toward a restatement of demographic transition theory." *Population Development Review* 2 (3/4): 321-366.

Caldwell John C. and Pat Caldwell. 1987. "The cultural context of high fertility in sub-Saharan Africa." *Population Development Review* 13 (3): 409-437.

Caldwell, John C. and Pat Caldwell. 1990a. "High fertility in sub-Saharan Africa." *Scientific American* (May): 118-125.

_____. 1990b. "Cultural forces tending to sustain high fertility." In *Population Growth and Reproduction in Sub-Saharan Africa*. Edited by George T. F. Acsadi, Gwendolyn Johnson-Acsadi, and Rodolfo A. Bulatao. Washington, DC: The World Bank.

Cochrane, S. H. 1979. *Fertility and Education: What Do We Really Know?* John Hopkins University Press, Baltimore.

DeKadt, E. and M. Segall. 1981. "Health needs and health services in rural Ghana." *Social Science and Medicine* 15a: 397-518.

Debpuur, Cornelius, Nazzar, Alex, Phillips, James F., and Fred N. Binka. 1994. *The Baseline Survey on Contraceptive Knowledge and Use, Reproductive Preferences, and Study Population Characteristics: A Report of Key Findings.* Navrongo, Ghana: Navrongo Health Research Centre, Community Health and Family Planning Project. Unpublished.

Dorkeno, E. and Elworthy, S. 1992. *Female Genital Mutilation: Proposals for Change*. London: Minority Rights Publications.

Evans-Anform, E. 1986. Traditional Medicine in Ghana: Practice, Problems, and Prospects. The J. B. Danquah Memorial Lectures, Seventeenth Series, February, 1984, Academy of Arts and Sciences, Accra, Ghana.

Ezeh, Alex C. 1991. "Gender differences in reproductive orientation in Ghana: A new approach to understanding fertility and family planning issues in sub-Saharan Africa." Presented at the Demographic and Health Surveys World Conference, August 5-7, Washington, DC.

_____ 1992. "Contraceptive practice in Ghana: Does partner's attitude matter?" Presented at the Population Association of America Annual Meeting, April 30-May 2, Denver.

Fapohunda, Eleanor and Michael P. Todaro. 1988. "Family structure, implicit contracts, and the demand for children in Southern Nigeria." *Population Development Review* 14 (4): 571-594.

Fayorsey, Clara, Adongo, Philip, and Beverly Kajihara. 1994. "The socio-cultural context of reproduction and family planning among the Kassena-Nankana District." Navrongo Health Research Centre, Community Health and Family Planning Project. Unpublished.

Feachem, R. G., Jamison, D. T., and E. R. Bos. 1991. "Changing patterns of disease and mortality in sub-Saharan Africa." In *Disease and Mortality in Sub-Saharan Africa* (Edited by R. G. Feachem and D. T. Jamison), pp. 3-27. Washington, DC: The World Bank and Oxford University Press.

Fortes, Meyer. 1987. *Religion, Morality, and the Person: Essays on Tellensi Religion.* Cambridge: Cambridge University Press.

Ghana Statistical Service. 1994. *Demographic and Health Survey*. Ghana Statistical Service, Accra; Institute for Resource Development/Macro Systems, Inc., Columbia, MD.

Gyepi-Garbarah B. 1985. *Adolescent Fertility in Sub-Saharan Africa. An Overview*. The Pathfinder Fund, Boston and Nairobi.

Health Research Unit. 1991a. *First Make Sure Our Children Won't Die: An Appraisal of Community Potential to Support Family Planning Services in Bolgatanga District*. Accra, Ghana: Ministry of Health. Unpublished.

_____. 1991b. *Won't It Cause Infertility?: An Appraisal of Community Potential to Support Family Planning Services in Berekum District*. Accra, Ghana: Ministry of Health. Unpublished.

_____. 1991c. *The Ability to Keep Secrets: An Appraisal of Community Potential to Support Family Planning Services in Dangbe West District*. Accra, Ghana: Ministry of Health. Unpublished.

Health Research Unit. 1992. *Conception and Misconceptions: Community Views of Family Planning*, Accra, Ghana: Ministry of Health.

Irrigation Corporation of the Upper Regions. 1991. *Monthly Rainfall Statistics*. Tono, Ghana: Irrigation Company of the Upper Regions. Unpublished.

Jain, Anrudh. 1989. "Fertility reduction and the quality of family planning services." *Studies in Family Planning* 20 (1): 1-16.

Juarez, F. 1993. "Fertility decline and child survival", in *International Population Conference, Montreal 1993*, 1: 53-64, Liège: International Union for the Scientific Study of Population.

Lloyd, Cynthia B. and Anastasia Gage-Brandon. 1993. "Women's role in maintaining households: Family welfare and sexual inequality." *Population Studies* 47 (1): 115-131.

Lloyd, Cynthia B. and Sonalde Desai. 1991. "Children's living arrangements in developing countries." Research Division Working Paper Number 31, The Population Council, New York.

Lloyd, Cynthia B. and Serguey Ivanov. 1988. "The effects of improved child survival on family planning practice and fertility." *Studies in Family Planning* 19 (3): 141-161.

MacLeod, Bruce B., Leon, David, and James F. Phillips. 1992. "The Household Registration System: A database software generator for longitudinal studies of health status and demographic dynamics." *Computing in the Social Sciences* 10 (3): 310-328.

Macro International. 1994. *1993 Ghana Demographic and Health Survey*. Calverton, MD: IRD/Macro International, Inc.

Maternal and Child Health and Family Planning Technical Coordination and Research Division. 1993. *Annual Report, 1993*. Accra: Ministry of Health. Unpublished.

Mbacké, Cheikh., Philip Adongo, Patricia Akweongo, and Fred Binka. 1997. "Prevalence and correlates of female genital mutilation in the Kassena-Nankana district of Northern Ghana." NHRC Working Papers, No. 1.

Miller, Robert, Andrew Fisher, Kate Miller et al. 1998. *The Situation Analysis Approach to Assessing Family Planning and Reproductive Health Services: A Handbook.* New York: The Population Council.

Ministry of Health. 1994. *Policies and Priorities for the Health Sector, 1994-1995*. Accra, Ghana: Ministry of Health of the Republic of Ghana. Unpublished

Monekosso, G. L. 1994. *District Health Management: Planning Implementing and Monitoring a Minimum Health for All Package*. Brazzaville: World Health Organization Regional Office for Africa. Unpublished.

Mott Frank L. and Susan H. Mott. 1985. "Household fertility decisions in West Africa: A comparison of male and female survey results." *Studies in Family Planning* 16 (2): 88-99.

National Health Planning Unit. 1977. *Health Policies for Ghana*. Accra, Ghana, Ministry of Health. Unpublished.

National Population Council. 1994. *Draft Population Policy*. Ministry of Finance and Planning, Accra, Ghana. Unpublished.

National Research Council. 1993. Demographic Effects of Economic Reversals in Sub-Saharan Africa. Washington, DC: National Academy Press.

Nazzar, Alex, James F. Phillips, Olivia Aglah, and Kofi Asobayire. 1994. "Appropriate technology in management information systems for community-based family planning programs: The Navrongo experience." Community Health and Family Planning Project Documentation Note 12, Navrongo, Ghana: Navrongo Health Research Centre.

Nazzar, Alex, Philip. B. Adongo, Fred Binka, James F. Phillips, and Cornelius Debpuur. 1995. "Involving a traditional community in strategic planning: The Navrongo Community Health and Family Planning Project Pilot Study." *Studies in Family Planning* 26(6):307-324.

Oppong, Christine. 1987. "Responsible fatherhood and birth planning." In *Roles, Population and Development in West Africa* (Edited by Christine Oppong), pp. 165-178. Heinemann, Portsmouth, NH.

Phillips, James F., Kubaje Adazu, Martin Adjuik, and Alex Nazzar. 1997. "Denial of contraceptive use among known contraceptive adopters in a rural area of northern Ghana." Paper presented at the Annual Meeting of the Population Association of America, Washington, 27-29 March.

Phillips, James F., Greene, Wendy L., and Elizabeth F. Jackson. 1998. "Lessons from community-based distribution of family planning in Africa." Paper presented at the IUSSP Seminar on Reproductive Change in Sub-Saharan Africa, Nairobi, Kenya, 2-4 November 1998.

Rawlings, J. J. 1994. *Message from H.E. Flt.-Lt. Jerry John Rawlings.* Presented at the International Conference on Population and Development, Cairo, 5-13 September.

Rattray, R.S. 1932. *The Tribes of the Ashanti Hinterland.* Oxford: Clarendon Press.

Reynolds, J. and K. C. Gaspari. 1985. "Operations research methods: Cost-effectiveness analysis." PRICOR Monograph Series: Methods Paper 2. Center for Human Services, Maryland.

Senah, K. A., Adongo, Philip B., Bawa, Ayaga Agula. Gyapong, Margaret, and Fred N. Binka. 1994. "The socio-cultural context of infant/child morbidity and mortality in Kassena-Nankana District." Report to the International Development Research Centre, Ottawa, Canada. Navrongo, Health Research Centre, Navrongo, Ghana. Unpublished.

Technical Coordination and Research Division. 1994. "Maternal and Child Health and Family Planning: 1994 Annual Report." Accra: Ministry of Health.

Young A. 1976. "Some implications of medical beliefs practices for social science." *American Anthropologist*, 78: 5.